



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

November 7, 2012

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

**SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION
REPORT NOS.: 05000325/2012004 AND 05000324/2012004**

Dear Mr. Annacone:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Brunswick Unit 1 and 2 facilities. The enclosed integrated inspection report documents the inspection findings, which were discussed on October 11, 2012, 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.

One NRC-identified and one self-revealing finding of very low safety significance (Green) were identified during this inspection. These findings were determined to involve a violation of NRC requirements. Further, two licensee-identified violations were determined to be of very low safety significance and are listed in this report. The NRC is treating these findings as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance of these NCVs, 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.

If you disagree with the cross-cutting aspect assignment 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.

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, 324/2012004
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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, 324/2012004
 w/Attachment: Supplemental Information

cc w/encl: (See page 3)

PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE
 ADAMS: x Yes ACCESSION NUMBER: ML12312A082 x SUNSI REVIEW COMPLETE x FORM 665 ATTACHED

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRP
SIGNATURE	JSD: /RA/	RAM RA for MPS	Via e-mail	Via e-mail	Via e-mail	Via e-mail	JGW: /RA/
NAME	JDodson	MCatts	MSchwieg	PNiebaum	LLake	MEndress	JWorosilo
DATE	10/24/2012	11/07/2012	10/24/2012	10/29/2012	10/26/2012	10/25/2012	10/15/2012
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICE	RII:DRP	RII:DRS
SIGNATURE	RAM: /RA/	Via e-mail
NAME	RMusser	MSpeck
DATE	11/7/2012	11/06/2012
E-MAIL COPY?	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRPI\RPB4\BRUNSWICK\REPORTS\2012 REPORTS\12-04\BRUNSWICK IIR 2012004.DOCX

cc w/encl:
Plant General Manager
Brunswick Steam Electric Plant
Progress Energy
Electronic Mail Distribution

Edward L. Wills, Jr.
Director Site Operations
Brunswick Steam Electric Plant
Electronic Mail Distribution

J. W. (Bill) Pitesa
Senior Vice President
Nuclear Operations
Duke Energy Corporation
Electronic Mail Distribution

John A. Krakuszeski
Plant Manager
Brunswick Steam Electric Plant
Electronic Mail Distribution

Lara S. Nichols
Deputy General Counsel
Duke Energy Corporation
Electronic Mail Distribution

M. Christopher Nolan
Director - Regulatory Affairs
General Office
Duke Energy Corporation
Electronic Mail Distribution

Michael J. Annacone
Vice President
Brunswick Steam Electric Plant
Electronic Mail Distribution

Annette H. Pope
Manager-Organizational Effectiveness
Brunswick Steam Electric Plant
Electronic Mail Distribution

Lee Grzeck
Regulatory Affairs Manager
Brunswick Steam Electric Plant
Progress Energy Carolinas, Inc.
Electronic Mail Distribution

Randy C. Ivey
Manager, Nuclear Oversight
Brunswick Steam Electric Plant
Progress Energy Carolinas, Inc.
Electronic Mail Distribution

Paul E. Dubrouillet
Manager, Training
Brunswick Steam Electric Plant
Electronic Mail Distribution

Joseph W. Donahue
Vice President
Nuclear Oversight
Progress Energy
Electronic Mail Distribution

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
Brunswick Steam Electric Plant
U.S. NRC
8470 River Road, SE
Southport, NC 28461

John H. O'Neill, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N. Street, NW
Washington, DC 20037-1128

Peggy Force
Assistant Attorney General
State of North Carolina
P.O. Box 629
Raleigh, NC 27602

(cc w/encl – continued)

M. Annacone

4

cc w/encl cont'd:

Chairman
North Carolina Utilities Commission
Electronic Mail Distribution

Robert P. Gruber
Executive Director
Public Staff - NCUC
4326 Mail Service Center
Raleigh, NC 27699-4326

Anthony Marzano
Director
Brunswick County Emergency Services
Electronic Mail Distribution

Public Service Commission
State of South Carolina
P.O. Box 11649
Columbia, SC 29211

W. Lee Cox, III
Section Chief
Radiation Protection Section
N.C. Department of Environmental Commerce & Natural Resources
Electronic Mail Distribution

Warren Lee
Emergency Management Director
New Hanover County
Department of Emergency Management
230 Government Center Drive
Suite 115
Wilmington, NC 28403

Letter to Michael J. Annacone from Randall A. Musser dated November 7, 2012

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION
REPORT NOS.: 05000325/2012004 AND 05000324/2012004

Distribution w/encl:

J. Baptist, RII EICS

L. Douglas, RII EICS

OE Mail (email address if applicable)

RIDSNRRDIRS

PUBLIC

R. Pascarelli, NRR ((Regulatory Conferences Only))

RidsNrrPMBrunswick Resource

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-325, 50-324

License Nos.: DPR-71, DPR-62

Report Nos.: 05000325/2012004, 05000324/2012004

Licensee: Carolina Power and Light (CP&L)

Facility: Brunswick Steam Electric Plant, Units 1 & 2

Location: 8470 River Road, SE
Southport, NC 28461

Dates: July 1, 2012 through September 30, 2012

Inspectors: M. Catts, Senior Resident Inspector
M. Schweg, Resident Inspector
P. Niebaum, Acting Senior Resident Inspector
J. Dodson, Senior Project Engineer (1R04, 1R05, 4OA2)
L. Lake, Senior Reactor Inspector (4OA5)
M. Endress, Reactor Inspector (1R07)

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

Enclosure

SUMMARY OF FINDINGS

IR 05000325/2012004, 05000324/2012004; 07/01/12 – 09/30/12; Brunswick Steam Electric Plant, Units 1 & 2; Refueling and Other Outage Activities, Identification and Resolution of Problems

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two Green findings were 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 aspects were determined using IMC 0310, "Components Within the Cross-Cutting Areas". 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: Barrier Integrity

Green: The inspectors identified a Green non-cited violation (NCV) of TS 3.6.4.1, Secondary Containment because the licensee did not maintain secondary containment operable as required during a maintenance activity considered an operation with a potential for draining the reactor vessel (OPDRV). Once questioned by the inspectors, the licensee restored secondary containment, developed an Operation standing instruction (12-052) to treat the activity as an OPDRV and placed this issue into its corrective action program (CAP) as AR 562188.

The failure to maintain secondary containment operable while Unit 1 was in Mode 4 with an OPDRV in progress was a performance deficiency. The finding was more than minor because it was associated with the configuration control attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events because the Unit 1 secondary containment boundary was not preserved or maintained. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609, Attachment 4, Phase 1 - Initial Screening and Characterization of Findings, which required an analysis using IMC 0609 Appendix G since the reactor was in Mode 4 (cold shutdown). The finding was determined to be of very low safety significance (Green) according to IMC 0609 Appendix G, Attachment 1, Checklist 6, since a quantitative assessment (Phase 2 or Phase 3 evaluation) was not required. Specifically, the inspectors determined that the licensee maintained adequate mitigation capability for reactor vessel water level inventory and an event did not occur that could be characterized as a loss of control. The cause of this finding was directly related to the cross-cutting aspect of Accurate Procedures in the Resources component of the Human Performance area, because the licensee did not consider the recirculation pump seal replacement activity to be OPDRV based on procedural guidance that contains exclusions to what are considered OPDRV activities. [H.2(c)] (Section 1R20)

Cornerstone: Emergency Preparedness

Green: A self-revealing Green NCV of 10 CFR 50.54(q)(2) was identified for the licensee's failure to properly evaluate or consider the impact to emergency response facilities of design change ESR98-00436 which was implemented in 1999. This resulted in the loss of Emergency Response Facility Information System (ERFIS), Emergency Response Data System (ERDS), Safety Parameter Display System (SPDS), and all displays including radiation monitors for the emergency response facilities. Specifically, the licensee failed to ensure that adequate emergency response facilities and equipment were available as required by the Brunswick Nuclear Plant Radiological Emergency Plan, Section 1.3.1.3 revision 80 and 10 CFR 50.47(b)(8). This issue was captured in the licensee's CAP as AR 542704.

The licensee's failure to properly evaluate or consider the impact to emergency response facilities of design change ESR98-00436 which was implemented in 1999 was a performance deficiency. Specifically, the licensee introduced a single point failure mode which did not meet the design requirements specified in their Design Basis Document (DBD 60) sections 3.6.7.2 and 3.6.7.3. This resulted in the licensee's failure to ensure that adequate emergency response facilities and equipment were available as delineated in the Updated Final Safety Analysis Report (UFSAR) Section 7.7.1.9, and required by the Brunswick Nuclear Plant Radiological Emergency Plan, Section 1.3.1.3, revision 80, and 10 CFR 50.47(b)(8). The finding was more than minor because it adversely affected the Emergency Preparedness Cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the Facilities and Equipment attribute was affected during the time when the ERFIS, ERDS, SPDS, and all displays including radiation monitors for the emergency response facilities were degraded, and as a result did not meet 10 CFR 50.47(b)(8) Planning Standard program element, adequate emergency facilities and equipment to support the emergency response are provided and maintained. The finding was assessed for significance in accordance with NRC IMC 0609, Appendix B Emergency Preparedness Significance Determination Process. Attachment 2 of Appendix B, Failure to Comply Significance Logic is as follows: Failure to comply; Loss of Risk Significant Planning Standard Function (RSPS), No; RSPS Degraded Function, No; Loss of Planning Standard Function, No; the result is a Green finding. The inspectors determined that this resulted in a very low safety significance finding (Green). No cross-cutting aspect was assigned to this finding because the performance deficiency occurred more than three years ago and is not reflective of current plant performance. (Section 4OA2.2)

B. Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at rated thermal power (RTP), and operated at or near full power until July 22, 2012 when reactor power was lowered to 52 percent to clear a fouled circulating water debris filter and power was returned to RTP on July 23, 2012. On August 3, 2012, power was reduced to 70 percent for a rod sequence exchange and power was returned to RTP on August 5, 2012. On August 5, 2012, power was reduced to 90 percent for control rod improvement and power was returned to RTP on the same day. On August 8, 2012, power was reduced to 65 percent for offsite transmission line work and power was returned to RTP on the same day. On September 16, 2012, the reactor was shut down for forced outage to replace the 1A and 1B recirculation pump seal assemblies. Reactor startup commenced on September 27, 2012 and the main generator was synchronized to the grid on September 28, 2012. Reactor power was raised to RTP on September 29, 2012. On September 30, 2012 reactor power was reduced to 75 percent for a scheduled control rod improvement. Power ascension continued to RTP for the remainder of the inspection period.

Unit 2 began the inspection period at RTP, and operated at or near full power until August 18, 2012, when power was reduced to 70 percent for a rod sequence exchange and power was returned to RTP on August 19, 2012. On August 20, 2012, power was reduced to 86 percent for control rod improvement and power was returned to RTP on August 21, 2012. On August 21, 2012, power was reduced to 94 percent for control rod improvement and power was returned to RTP on August 21, 2012. On September 29, 2012, reactor power was reduced to 94 percent to support a scheduled rod improvement and returned to RTP later that day and maintained RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

External Flooding

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), which depicted the design flood levels and protection areas containing safety-related equipment, to identify areas that may be affected by external flooding. The inspectors conducted a site walk-down of the service water building, to ensure that erected flood protection measures were in accordance with design specifications. The inspectors reviewed the sealing of equipment below the flood line, adequacy of watertight doors, drain systems and sumps including check valves, and maintenance and calibration of flood protection equipment. The inspectors also reviewed operating procedures for mitigating external flooding during severe weather to

determine if the licensee planned or established adequate measures to protect against external flooding events.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Quarterly Partial System Walk-downs (71111.04Q – 3 samples)

a. Inspection Scope

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

- Unit 2 “A” train Core Spray (CS) system while “B” residual heat removal/service (RHR/SW) was inoperable for a system outage on July 11, 2012;
- Unit 1 Reactor Building Closed Cooling Water (RBCCW) on July 27, 2012; and
- Unit 1 “B” Standby Gas Treatment (SBGT) while the “A” SBGT was inoperable for a maintenance outage on September 19, 2012.

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify that system components and support equipment were aligned correctly and were 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 CAP with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walk-down (71111.04S – 1 sample)

a. Inspection Scope

On September 5, 2012 the inspectors performed a complete system alignment inspection of the Unit 1 RHR 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. 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 CAP to ensure that system equipment alignment problems were being identified and appropriately resolved.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

Quarterly Resident Inspector Tours

a. Inspection Scope

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

- Unit 1 and 2 Control Buildings 23' Elevation 1PFP-CB-7;
- Unit 1 Reactor Building East 50' Elevation 1PFP-RB1-1h;
- Unit 1 Turbine Building South Area 38' Elevation 1PFP-TB1-1k;
- Unit 2 Reactor Building 50' Elevation 2PFP-RB2-1h; and
- Unit 2 Reactor Building North 2A Core Spray Room 2-PFP-RB2-1b.

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 CAP.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could disable risk-significant equipment. The inspectors performed walk-downs of risk-significant areas, including manhole 2-MH-7SW, to verify that the cables were not submerged in water, that cables and/or splices appear intact and to observe the condition of cable support structures. When applicable, the inspectors verified proper dewatering device (sump pump) operation and verified level alarm circuits are set appropriately to ensure that the cables will not be submerged. Where dewatering devices were not installed; the inspectors ensured that drainage was provided and was functioning properly.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07T – 3 samples)

Triennial Review of Heat Sink Performance

a. Inspection Scope

The inspectors selected the Residual Heat Removal (RHR) Heat Exchanger 2A, Diesel Generator (DG) 3 Jacket Water Cooler and the Core Spray (CS) Room Cooler 1A, based on their risk-significance in the licensee's probabilistic safety analysis and their importance to safety-related mitigating system support functions in the NRC's model for Brunswick Nuclear Power Plant, Units 1 and 2.

For the RHR Heat Exchanger 2A, DG 3 Jacket Water Cooler and the CS Room Cooler 1A, the inspectors reviewed the licensee's inspection, maintenance, and monitoring of biotic fouling and macro-fouling programs, to determine if they were adequate to ensure proper heat transfer. This was accomplished by determining whether the methods used were consistent with accepted industry practices. The inspectors also reviewed the licensee's inspection and cleaning activities had established acceptance criteria consistent with industry standards, and the as-found results were recorded, evaluated, and appropriately dispositioned to maintain structural integrity.

For the RHR Heat Exchanger 2A, DG 3 Jacket Water Cooler and the CS Room Cooler 1A, the inspectors reviewed the methods and results of heat exchanger performance inspections. In addition, the inspectors reviewed the condition and operation of the RHR Heat Exchanger 2A, DG 3 Jacket Water Cooler and the CS Room Cooler 1A to

determine if they were consistent with design assumptions in heat transfer calculations and as described in the USFAR. This included determining whether the number of plugged tubes was within pre-established limits based on capacity and heat transfer assumptions. The inspectors also determined whether the licensee evaluated the potential for water hammer and established adequate controls and operational limits to prevent heat exchanger degradation due to excessive flow-induced vibration during operation.

The inspectors determined whether the performance of the ultimate heat sink (UHS)-Cape Fear River and its subcomponents such as piping, intake screens, pumps, valves, etc. was appropriately evaluated by tests or other equivalent methods to ensure availability and accessibility to the in-plant cooling water systems. The inspectors also reviewed design changes to the service water system and the UHS.

The inspectors reviewed the licensee's operation of the service water system and UHS. This included a review of licensee's procedures for a loss of the service water system or UHS and the verification that instrumentation, which is relied upon for decision-making, was available and functional. The inspectors also performed a system walk-down on the service water system to determine whether the licensee's assessment on structural integrity was adequate and interviewed the respective system engineer. For buried or inaccessible piping, the inspectors reviewed the licensee's pipe testing, inspection, and monitoring program to determine whether structural integrity was ensured and that any leakage or degradation was appropriately identified and dispositioned by the licensee.

The inspectors performed a system walk-down of the service water intake structure to determine whether the licensee's assessment on structural integrity and component functionality was adequate. The inspectors also determined whether service water pump bay silt accumulation was monitored, trended, and maintained at an acceptable level by the licensee, and that water level instruments were functional and routinely monitored. The inspectors also determined whether the licensee's ability to ensure functionality during adverse weather conditions was adequate.

The inspectors reviewed condition reports related to the heat exchangers and heat sink performance issues to determine whether the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the corrective actions. Records were also reviewed to verify that the licensee actions were consistent with Generic Letter (GL) 89-13 licensee commitments, Electric Power Research Institute (EPRI) and other industry guidelines. These inspection activities constituted three heat sink inspection samples as defined in IP 71111.07-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

On August 13, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and to ensure that training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

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

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

Inspectors observed and assessed licensed operator performance in the plant and main control room, particularly during periods of heightened activity or risk and where the activities could affect plant safety. Specifically, on September 16th, the inspectors observed the Unit 1 shutdown and cooldown evolutions leading up to the forced outage to repair the recirculation pump seals. The inspectors reviewed various licensee policies and procedures listed in the Attachment.

- Operator compliance and use of procedures.
- Control board manipulations.
- Communication between crew members.
- Use and interpretation of plant instruments, indications and alarms.
- Use of human error prevention techniques.
- Documentation of activities, including initials and sign-offs in procedures.
- Supervision of activities, including risk and reactivity management.
- Pre-job briefs and crew briefs

This activity constituted one License Operator Requalification inspection sample and one Control Room Observation inspection sample.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 3 samples)

a. Inspection Scope

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

- 1B Nuclear Service Water Pump smoking with vibration and strainer leakage on pump start on June 26, 2012;
- 2A Standby Liquid Cooling accumulator failure before operability run on September 10, 2012 (AR560026); and
- Performance (unavailability and unreliability) history of the Severe Accident Mitigation Alternatives (SAMA) diesels

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

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring; and
- 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.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 samples)a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the 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:

- Unit 2 yellow risk during emergent work on 2-E21-F015A, 2A Core Spray Full Flow Test Bypass Valve, and scheduled maintenance on 2B RHR/residual heat removal service water (RHRSW) on July 11, 2012;
- Unit 1 yellow risk during 1B Recirculation Pump Variable Frequency Drive power recovery, and planned maintenance on 1A RHR/RHRSW on July 26, 2012;
- Unit 1 yellow risk during planned maintenance on 1B RHR/RHRSW September 4 to September 6, 2012;
- Unit 1 integrated risk during repair of 1B recirculation pump seal September 17 to September 25, 2012;

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

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15 – 5 samples)a. Inspection Scope

The inspectors reviewed the following five issues:

- Unit 2 High Pressure Coolant Injection (HPCI) elevated thrust bearing temperature on July 6, 2012 (AR548370);
- 2D RHRSW Booster pump coupling grease specification evaluation on July 12, 2012 (AR542025);
- Emergency Diesel Generator (EDG) #3 debris in bearing oil site glass on July 15, 2012 (AR549420);
- Reactor Building Close Cooling Water (RBCCW) piping corrosion in rattle space on August 21, 2012 (AR557151); and

- EDG #4 alternate safe shutdown switch contact continuity indications on August 27, 2012 (AR558810)

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

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 2 samples)

a. Inspection Scope

The inspectors reviewed the two modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results and conducted field walk-downs of the modifications to verify that the modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

- Design leak tight barriers at reactor building rattle spaces (EC86304);
- Service water building drain hub baffle plate installation (EC 88431)

b. Findings

No findings were identified.

1R19 Post Maintenance Testing (71111.19 – 7 samples)

a. Inspection Scope

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

- OPT-12.2D, No. 4 Diesel Generator Monthly Load Test after replacement of the 60X relay on July 23, 2012;

- OPT-08.1.4B, Residual Heat Removal (RHR) Service Water (SW) System Operability Test – Unit 2 RHRSW Loop B after the maintenance outage on July 12, 2012;
- OPT-08.2.2c, Low Pressure Coolant Injection/RHR System Operability Test – Unit 1 RHR Loop A after the maintenance outage on July 27, 2012;
- OPT-12.2C, EDG #3 Operability Test – Unit 2 after repair of jacket water pump on August 16, 2012;
- OPT-15.6, Standby Gas Treatment Operability Test, Unit 1 B after relay replacement on August 15, 2012;
- OPT-10.1.1, Reactor Core Isolation Cooling System Operability Test, Unit 2 after replacement of Electronic Governor - Magnetic (EGM) on August 23, 2012; and
- OPT-80.5, Reactor Pressure Vessel Pressure Test – Unit 1 after repair of 1B recirculation pump seal on September 26, 2012

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following, as applicable: 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 the UFSAR and TS 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 CAP and that the problems were being corrected commensurate with their importance to safety.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

Other Outage Activities

a. Inspection Scope

The inspectors evaluated licensee outage activities for an unscheduled forced outage to replace the 1B recirculation pump seal assembly. During the outage, the licensee made the decision to replace the 1A recirculation pump seal assembly to address the potential extent of cause/condition. The outage began on September 16, 2012 and concluded on September 28, 2012. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule. Additionally, the inspectors observed or reviewed the reactor shutdown and cool down, outage equipment configuration and risk management, electrical lineups, control and monitoring of decay heat removal, control of containment activities, performed a drywell close out inspection, observed reactor startup and heat up activities, and identification and resolution of problems associated with the outage. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: The inspectors identified a Green NCV of TS 3.6.4.1, Secondary Containment because the licensee did not maintain secondary containment operable as required during an activity considered an operation with a potential for draining the reactor vessel (OPDRV).

Description: On September 19, 2012, the licensee was replacing the 1B recirculation pump seal assembly while Unit 1 was in Mode 4 (cold shutdown). In an effort to properly isolate the work area, the recirculation suction and discharge isolation valves were tagged closed. Due to seat leakage across the isolation valves, the 1B recirculation pump drain valve was uncapped and opened to maintain the pump body partially empty to prevent water from impacting the work area while the pump seal was removed. The pump drain leakage was sent to the drywell floor drain system. The 1B recirculation pump seal replacement activity had the potential to drain the reactor vessel below the top of the fuel because the recirculation loops penetrate the reactor vessel below the top of active fuel. An OPDRV is described in the licensee's technical specifications as an operation with a potential for draining the reactor vessel. However, the licensee did not recognize or consider this activity as an OPDRV due to inadequate procedural guidance that was used to exclude this activity as an OPDRV. Specifically, the licensee adopted the definition of an OPDRV in procedure 00I-01.01 as provided in Enforcement Guidance Memorandum (EGM) 11-003 as any activity that could potentially result in draining or siphoning the RPV water level below the top of the fuel, without taking credit for mitigating measures. However, section 9.16.15.b.(2) of licensee procedure 00I-01.01, BNP Conduct of Operations Supplement, stated leakage through mechanical joints (for example valve or flange packing leaks, seat leakage through an isolation valve, flange leakage, etc) is not considered an OPDRV. On September 19, 2012, the licensee relaxed Unit 1 secondary containment from 03:30 a.m. until 09:20 p.m. by opening the reactor building air lock doors on the 20-foot elevation to increase ventilation to the recirculation pump seal replacement work area in the Unit 1 drywell. This resulted in Secondary Containment inoperability while Unit 1 was in Mode 4 during an OPDRV activity. The inspectors questioned the licensee's Operations staff on the decision to make secondary containment inoperable during an OPDRV activity. Following this, the licensee restored secondary containment, developed an Operation standing instruction 12-052 to treat this activity as an OPDRV and placed this issue into its CAP as AR 562188.

Analysis: The inspectors determined that the failure to maintain secondary containment operable while Unit 1 was in Mode 4 with an OPDRV in progress was a performance deficiency. The performance deficiency was more than minor because it was associated with the configuration control attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events because the Unit 1 secondary containment boundary was not preserved or maintained. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609, Attachment 4, Phase 1 - Initial Screening and Characterization of Findings, which required an analysis using IMC 0609 Appendix G since the reactor was in Mode 4 (cold shutdown). The finding was determined to be of very low safety significance (Green) according to IMC 0609

Appendix G, Attachment 1, Checklist 6, since a quantitative assessment (Phase 2 or Phase 3 evaluation) was not required. Specifically, the inspectors determined that the licensee maintained adequate mitigation capability for reactor vessel water level inventory and an event did not occur that could be characterized as a loss of control. The cause of this finding was directly related to the cross-cutting aspect of Accurate Procedures in the Resources component of the Human Performance area, because the licensee did not consider the recirculation pump seal replacement activity to be OPDRV based on procedural guidance that contains exclusions to what are considered OPDRV activities. [H.2(c)]

Enforcement: Unit 1 TS 3.6.4.1, Secondary Containment, required secondary containment to be operable during modes one, two, three, during movement of recently irradiated fuel assemblies in the secondary containment and during operations with a potential for draining the reactor vessel (OPDRVs). Contrary to the above, on September 19, 2012, Unit 1 secondary containment was not maintained operable during an OPDRV activity. The licensee entered this issue in its CAP as AR 562188, and restored secondary containment during the OPDRV activity. Because the licensee entered the issue into its CAP and the finding is of very low safety significance (Green), this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC's Enforcement Policy: NCV 05000325/2012004-01, Failure to Maintain Secondary Containment Operable during an OPDRV activity.

1R22 Surveillance Testing

.1 Routine Surveillance Testing (71111.22 – 4 samples)

a. Inspection Scope

The inspectors either observed surveillance tests or reviewed the test results for the following activities to verify the tests met TS surveillance requirements, UFSAR commitments, in-service testing requirements, and licensee procedural requirements. The inspectors assessed the effectiveness of the tests in demonstrating that the SSCs were operationally capable of performing their intended safety functions.

- OPT-07.2.4A, Core Spray System Operability Test – Loop A on July 5, 2012;
- 0MST-RHR21Q, RHR-LPCI, CSS and HPCI Hi Drywell Pressure Trip Unit Inst Chan Cal on July 10, 2012;
- 0MST-RCIC42R, RCIC Auto-actuation and Isolation Logic Sys Functional on July 24, 2012; and
- OPT-12.12D, No. 4 Diesel Generator Monthly Load Test on August 17, 2012;

b. Findings

No findings were identified.

.2 In-Service Testing (IST) Surveillance (71111.22 – 1 sample)

a. Inspection Scope

The inspectors reviewed the performance of Unit 1 LPCI/RHR System Operability Test – Loop B on August 9, 2012 to evaluate the effectiveness of the licensee’s American Society of Mechanical Engineers (ASME) Section XI testing program for determining equipment availability and reliability. The inspectors evaluated selected portions of the following areas: 1) testing procedures, 2) acceptance criteria, 3) testing methods, 4) compliance with the licensee’s IST program, TS, selected licensee commitments, and code requirements, 5) range and accuracy of test instruments, and 6) required corrective actions.

b. Findings

No findings were identified.

.3 Reactor Coolant System Leak Detection Inspection Surveillance (71111.22 – 1 sample)

a. Inspection Scope

The inspectors observed and reviewed the test results for a reactor coolant system leak detection surveillance, OPT-80.5, Mid-Cycle Maintenance Outage Reactor Pressure Vessel Pressure Test, on September 28, 2012. The inspectors observed in-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 was 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; and test data and results were accurate, complete, within limits, and valid. Inspectors verified that test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; 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.

b. Findings

No findings were identified.

1EP6 Emergency Planning Drill Evaluation (71114.06 – 2 samples)a. Inspection Scope

The inspectors observed site emergency preparedness training drill/simulator scenarios conducted on July 9, 2012 and July 25, 2012. 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 were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151 – 6 samples).1 Mitigating Systems Cornerstonea. Inspection Scope

- Mitigating Systems Performance Index, Residual Heat Removal – Unit 1
- Mitigating Systems Performance Index, Residual Heat Removal – Unit 2

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) performance indicators listed above for the period from the third (3rd) quarter 2011 through the second (2nd) quarter 2012. 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.

b. Findings

No findings were identified.

.2 Barrier Integrity Cornerstonea. Inspection Scope

- Reactor Coolant System (RCS) Specific Activity – Unit 1
- Reactor Coolant System (RCS) Specific Activity – Unit 2

The inspectors reviewed licensee submittals for the Reactor Coolant System Specific Activity performance indicator for the period from the third (3rd) quarter 2011 through the second (2nd) quarter 2012. The inspectors reviewed the licensee's RCS chemistry

samples, TS requirements, issue reports, and event reports for the period to validate the accuracy of the submittals. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample.

- Reactor Coolant System Leakage – Unit 1
- Reactor Coolant System Leakage – Unit 2

The inspectors sampled licensee submittals for the Reactor Coolant System Leakage performance indicator for the period from the third (3rd) quarter 2011 through the second (2nd) quarter 2012. The inspectors reviewed the licensee's operator logs, RCS leakage tracking data, issue reports, and event reports for the period to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152 – 2 samples)

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

a. Inspection Scope

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

b. Findings

No findings were identified.

.2 Assessments and Observations

Selected Issue Follow-up Inspection: UPS-A Failure and Loss of Emergency Response Facility Information System (ERFIS), Plant Process Computer (PPC), Business Network

a. Inspection Scope

The inspectors selected AR 542704, UPS-A Failure and Loss of ERFIS, PPC, Business Network, for detailed review. This AR identified that a single failure caused the loss of ERFIS and Safety Parameter Display System (SPDS) on both units. The inspectors reviewed the licensee's CAP for ERFIS and SPDS failures in the past. The inspectors reviewed these reports to verify that the licensee identified the full extent of the issue, performed an appropriate evaluation, and specified and prioritized appropriate corrective actions. The inspectors evaluated the reports against the requirements of the licensee's CAP as delineated in corporate procedure CAP-NGGC-0200, Corrective Action Program, 10 CFR 50.47, and 10 CFR 50 Appendix E.

b. Findings

No findings were identified

a. Inspection Scope

The inspectors selected AR 542704, UPS-A Failure and Loss of ERFIS, PPC, Business Network, for detailed review. This AR identified that a single failure caused the loss of ERFIS and Safety Parameter Display System (SPDS) on both units. The inspectors reviewed the licensee's CAP for ERFIS and SPDS failures in the past. The inspectors reviewed these reports to verify that the licensee identified the full extent of the issue, performed an appropriate evaluation, and specified and prioritized appropriate corrective actions. The inspectors evaluated the reports against the requirements of the licensee's CAP as delineated in corporate procedure CAP-NGGC-0200, Corrective Action Program, 10 CFR 50.47, and 10 CFR 50 Appendix E.

b. Findings

Introduction: A self-revealing Green NCV of 10 CFR 50.54(q)(2) was identified for the licensee's failure to properly evaluate or consider the impact to emergency response facilities of design change ESR98-00436 which was implemented in 1999. As a result, a number of temporary losses of ERFIS, Emergency Response Data System (ERDS), SPDS, and all displays including radiation monitors for the emergency response facilities occurred. Specifically, the licensee failed to ensure that adequate emergency response facilities and equipment were available as required by the Brunswick Nuclear Plant Radiological Emergency Plan, Section 1.3.1.3, revision 80, and 10 CFR 50.47(b)(8). This issue was captured in the licensee's CAP as AR 542704.

Description: In 1999, the licensee implemented design change ESR98-00436 for the power supply to the ERFIS, ERDS, SPDS, and all displays including RMS for the emergency response facilities. The licensee did not properly evaluate or consider the impact to emergency response facilities and equipment prior to implementation of this design change. As a result, the ERFIS, ERDS, and SPDS systems, and all radiation monitoring system (RMS) displays were susceptible to a single point power failure mode. The implementation of the design change introduced a single point failure mode which did not meet the design requirements specified in their Design Basis Document (DBD 60) sections 3.6.7.2 and 3.6.7.3. Prior to the licensee's implementation of design change ESR98-00436 in 1999, this single point vulnerability did not exist as the power supply system had automatic switching capability on loss of one power source. When the design change was implemented, the ERFIS, ERDS, and SPDS systems and RMS displays were degraded as demonstrated by the resulting failures of those systems on multiple occasions including July 17, 2004 and June 12, 2012. Additionally, all displays for those systems were lost in all of the emergency facilities including the radiation monitoring system.

On June 13, 2012, the licensee made an event notification to the NRC Operations Center, 50.72(b)(3)(xiii) Loss of Emergency Assessment Capability, Offsite Response Capability, or Offsite Communications Capability for the emergency response facilities. The report delineated that at 5:57 p.m. EDT on June 12, 2012, Brunswick Nuclear Plant experienced a fault on the Emergency Response Facility Information System (ERFIS) uninterruptible power supply (UPS) electrical bus 'A'. This resulted in a loss of site Safety Parameter Display System (SPDS), Emergency Response Data System (ERDS) and Plant Process Computer (PPC) for both Unit 1 and Unit 2.

During the loss of SPDS, the emergency response capability of that system was lost to the site. During the loss of ERDS, the automatic data transfer feature of that system was lost for transmissions to the NRC, however manual data transfer was still available. During the loss of the PPC, automatic core thermal power averaging and automatic core thermal limit monitoring was lost. Manual calculations were available for these functions. Unit 1 SPDS was restored to the Emergency Operations Facility (EOF) at 7:49 p.m. on June 12, 2012. Unit 2 SPDS was restored to the EOF at 8:30 p.m. on June 12, 2012. The inverter was restored to service on June 17, 2012 at 12:00 noon.

Inspectors determined that the licensee did not properly evaluate or consider the impact to all emergency response facilities and equipment prior to implementation of the ESR98-00436 design change. The inspectors concluded that the ERFIS, ERDS, and SPDS systems required by the Brunswick Nuclear Plant Radiological Emergency Plan were degraded from 1999 when the design change was installed to present. Compensatory measures were put in place during the June 2012 event to manually obtain and log the required data from the instrumentation in the control room and transmit to the emergency response facilities, and after the June 2012 event, the licensee initiated a design change to restore the power configuration to those systems back to the original design which would remove this failure mechanism.

Analysis: The licensee's failure to properly evaluate or consider the impact to emergency response facilities of design change ESR98-00436 which was implemented in 1999 was a performance deficiency. Specifically, the licensee introduced a single point failure mode which did not meet the design requirements specified in their Design Basis Document (DBD 60) sections 3.6.7.2 and 3.6.7.3. This resulted in the licensee's failure to ensure that adequate emergency response facilities and equipment were available as delineated in the Updated Final Safety Analysis Report (UFSAR) Section 7.7.1.9, and required by the Brunswick Nuclear Plant Radiological Emergency Plan, Section 1.3.1.3, revision 80, and 10 CFR 50.47(b)(8).

The finding was more than minor because it adversely affected the Emergency Preparedness Cornerstone objective of ensuring that the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the Facilities and Equipment attribute was affected during the time when the ERFIS, ERDS, SPDS, and all displays including radiation monitors for the emergency response facilities were degraded, and as a result did not meet 10 CFR 50.47(b)(8) Planning Standard program element, adequate emergency facilities and equipment to support the emergency response are provided and maintained. The finding was assessed for significance in accordance with NRC IMC 0609, Appendix B Emergency Preparedness Significance Determination Process.

Attachment 2 of Appendix B, Failure to Comply Significance Logic is as follows: Failure to comply; Loss of Risk Significant Planning Standard Function (RSPS), No; RSPS Degraded Function, No; Loss of Planning Standard Function, No; the result is a Green finding. The inspectors determined that this resulted in a low safety significance finding (Green). No cross-cutting aspect was assigned to this finding because the performance deficiency occurred more than three years ago and is not reflective of current plant performance.

Enforcement: 10 CFR 50.54(q)(2) requires, in part, a licensee to follow and maintain the effectiveness of an emergency plan that meets the requirements in Appendix E to this part and, for nuclear power reactor licensee, the planning standards of 10 CFR 50.47(b). The Brunswick Nuclear Plant Radiological Emergency Plan, Section 1.3.1.3, revision 80, states in part that special provisions have been made to assure that ample space and proper equipment are available to effectively respond to a full range of possible emergencies. Contrary to the above, from 1999, when design change ESR98-00436 was installed, until the compensatory measures were put in place in June 2012, the licensee failed to maintain adequate emergency facilities and equipment to support emergency response when the ERFIS, ERDS, SPDS, and all displays including radiation monitors for the emergency response facilities were degraded due to the implementation of the design change. This resulted in failures of those systems on July 17, 2004 and June 12, 2012. The licensee has compensatory measures in place, entered this issue their CAP as AR 542704, and initiated a design change to restore the power configuration back to the original design. Because the licensee entered the issue into its CAP and the finding is of very low safety significance (Green), this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC's Enforcement Policy: NCV 05000325; 324/2012004-02, Failure to Maintain Reliability and Availability of Emergency Response Equipment for Emergency Response Facilities.

.3 Assessments and Observations

Selected Issue Follow-up Inspection: EDG 2 wiring associated with Alternate Safe Shutdown (ASSD) Switch 2-DG-SS-A1

a. Inspection Scope

The inspectors performed a detailed review of AR 557897 associated with the wiring for the EDG 2 Alternate Safe Shutdown (ASSD) Switch 2-DG-SS-A1. The issue was discovered during a planned system outage for EDG2 during the week of August 26. The inspectors verified that the issue was captured completely and accurately in the CAP. The inspectors evaluated the licensee's operability determinations and performed walk-downs with licensee staff of applicable fire areas as needed. The inspectors followed the licensee's actions to restore the wiring to its proper configuration and also verified the extent of condition inspections for the remaining EDGs 1, 3 and 4 were completed in a timely manner. The inspectors reviewed the licensee's reportability evaluation and subsequent 8-hour report made to the NRC in accordance with 10 CFR 50.72(b)(3)(ii)(B). Additional documents reviewed are listed in the Attachment.

b. Findings

Introduction: The inspectors opened an unresolved item (URI) for this issue of concern to determine if a performance deficiency existed.

Description: A wiring discrepancy was identified during inspection of the EDG 2 ASSD switch 2-DG-SS-A1. A contact in the circuit was determined to be bypassed that would have the potential to prevent proper isolation of the EDG2 control circuits from the Main Control Room (MCR) during an Appendix R fire event. The inspectors plan to review the licensee's cause evaluation for this event and determine if a performance deficiency existed. This issue is being tracked as URI 05000325; 324/2012004-03, EDG2 wiring on ASSD switch.

4OA3 Follow-up of Events (71153 – 2 samples)

.1 Notice of Unusual Event for Fire in the Protected Area

a. Inspection Scope

For the plant event listed below, the inspectors reviewed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional NRC personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that the licensee made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR 50.72. The inspectors reviewed the licensee's follow-up actions related to the events to assure that the licensee implemented appropriate corrective actions commensurate with their safety significance.

- On August 2, 2012, a fire existed in the protected area on the Units 1 and 2 turbine building roof for approximately two hours, meeting the criteria for a Notice of Unusual Event declaration.

b. Findings

One licensee identified violation is documented in Section 4OA7 of this report.

.2 (Closed) LER 05000325/2012-004-00, High Pressure Coolant Injection (HPCI) Inoperable Due to Erratic Governor Operation

a. Inspection Scope

On May 2, 2012, Unit 1 HPCI was declared inoperable due to erratic governor operation during Surveillance Test OPT-09.2, HPCI System Operability Test. The erratic governor operation was due to the failure of the Ramp Generator Signal Converter (RGSC). The licensee determined that the root cause of the RGSC failure was due to a lack of a replacement preventative maintenance (PM) for the RGSC, which had been installed for at least 22 years. The corrective actions included replacing the RGSC and creating a PM task to replace the RGSCs. The licensee documented the root cause evaluation in

NCR 534364. The inspectors reviewed the LER, the NCR, and corrective actions to determine whether the station adequately evaluated the condition.

b. Findings

One licensee identified violation is documented in Section 4OA7 of this report. This LER is closed.

4OA5 Other Activities

.1 (Discussed) NRC Temporary Instruction (TI) 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walk-downs, and NRC TI 2515/188, Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walk-downs

a. Inspection Scope

Inspectors accompanied the licensee on a sampling basis, during their flooding and seismic walk-downs, to verify that the licensee's walk-down activities were conducted using the methodology endorsed by the NRC. These walk-downs are being performed at all sites in response to a letter from the NRC to licensees, entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340).

Enclosure 3 of the March 12, 2012, letter requested licensees to perform seismic walk-downs using an NRC-endorsed walk-down methodology. Electric Power Research Institute (EPRI) document 1025286 titled, "Seismic Walk-down Guidance," (ADAMS Accession No. ML12188A031) provided the NRC-endorsed methodology for performing seismic walk-downs to verify that plant features, credited in the current licensing basis (CLB) for seismic events, are available, functional, and properly maintained.

Enclosure 4 of the letter requested licensees to perform external flooding walk-downs using an NRC-endorsed walk-down methodology (ADAMS Accession No. ML12056A050). Nuclear Energy Industry (NEI) document 12-07 titled, "Guidelines for Performing Verification Walk-downs of Plant Protection Features," (ADAMS Accession No. ML12173A215) provided the NRC-endorsed methodology for assessing external flood protection and mitigation capabilities to verify that plant features, credited in the CLB for protection and mitigation from external flood events, are available, functional, and properly maintained.

b. Findings

Findings or violations associated with the flooding and seismic walk-downs, if any, will be documented in future reports.

.2 (Discussed) Temporary Instruction (TI) 2515/182 – Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase 1

a. Inspection Scope

Leakage from buried and underground pipes has resulted in ground water contamination incidents with associated heightened NRC and public interest. The industry issued a guidance document, Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Buried Piping Integrity," (ADAMS Accession No. ML 1030901420), to describe the goals and required actions (commitments made by the licensee) resulting from this underground piping and tank initiative. On December 31, 2010, NEI issued Revision 1 to NEI 09-14, "Guidance for the Management of Underground Piping and Tank Integrity," (ADAMS Accession No. ML 110700122), with an expanded scope of components which included underground piping that was not in direct contact with the soil and underground tanks. On November 17, 2011, the NRC issued TI-2515/182, "Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks," to gather information related to the industry's implementation of this initiative. The inspectors reviewed the licensee's programs for buried pipe and underground piping and tanks in accordance with TI-2515/182 to determine if the program attributes and completion dates identified in Section 3.3 A and 3.3 B of NEI 09-14, Revision 1, were contained in the licensee's program and implementing procedures. For the buried pipe and underground piping program attributes, with completion dates that had passed, the inspectors reviewed records to determine if the attribute was in fact complete and to determine if the attribute was accomplished in a manner which reflected good or poor practices in management.

b. Observations

The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraphs 03.01.a through 03.01.c of TI-2515/182 and was found to meet all applicable aspects of NEI 09-14 Revision 1, as set forth in Table 1 of the TI.

Based upon the scope of the review described above, Phase I of TI-2515/182 was completed.

c. Findings

No findings were identified.

4OA6 Management Meetings

Exit Meeting Summary

On July 19, 2012, the inspectors presented inspection results of the triennial heat sink inspection to Mr. Michael Annacone and other members of the licensee staff. The

inspectors confirmed that none of the potential report input discussed was considered proprietary.

On September 18, 2012, the inspector presented inspection results of the TI-182, Phase 1 of the Underground Piping and Tanks Inspection by conference call to Mr. James Burke, Site Director of Engineering, and other members of the licensee staff. The inspector verified that all proprietary information was returned to the licensee.

On October 11, 2012, the inspectors presented inspection results from the quarterly inspection to Mr. Annacone and other members of the licensee staff. The inspectors confirmed that any proprietary information received during the inspection period were properly controlled or returned to licensee staff.

4OA7 Licensee-Identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as NCVs.

- 10 CFR 50.54(q) requires, in part, a licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards of 10 CFR 50.47(b). Title 10 CFR 50.47(b)(4) requires, in part, a standard emergency classification and action level scheme be used by the licensee. Procedure OPEP-02.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency, Step 5.7.2 states, that the emergency declaration will be made within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded. Procedure OPEP-02.1, Initial Emergency Actions, HU2.1, requires the declaration of an Unusual Event when a fire is not extinguished within 15 minutes of control room notification or verification of a control room fire alarm in any Table H-1 or Table H-3 areas. Table H-1 includes the turbine building. Contrary to the above, on August 2, 2012, a Notice of Unusual Event (NOUE) was not classified within 15 minutes of a fire within the protected area not being extinguished within 15 minutes of detection. Specifically, when a fire was reported on the Turbine Building roof to the Control Room and was not extinguished within 15 minutes, conditions were met for classification of EAL HU2.1 in accordance with Procedure OPEP-02.1; however, the EAL was not classified until approximately eight hours after the fire started. This issue was entered into the licensee's CAP as NCR 552984 and the licensee is performing a root cause evaluation. Corrective actions included making a one hour report to the NRC for discovery of a condition that met the EAL classification for an NOUE after the fact. The inspectors determined the finding was associated with an actual event implementation problem, and assessed the significance using IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process." Using the Emergency Preparedness SDP, Sheet 1, "Failure to Implement (Actual Event) Significance Logic" the inspectors determined the finding was of very low safety significance (Green) because the licensee failed to implement a risk significant planning standard (10 CFR 50.47(b)(4)) during an actual Notice of Unusual Event.

- 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Licensee procedure ADM-NGGC-0107, Equipment Reliability Process Guideline, steps 9.4.9 and 9.4.10 required component experts and preventive maintenance (PM) optimization to determine if there was a cost effective PM to prevent failure and then to develop the PM model. Contrary to the above, the Unit 1 high pressure coolant injection (HPCI) ramp generator signal converter (RGSC) did not have the appropriate preventive maintenance to prevent failure. As a result, the Unit 1 high pressure coolant injection (HPCI) system failed the HPCI System Operability Test performed on April 30, 2012 and was declared inoperable. The licensee entered this issue into the CAP as NCR 534364. Corrective actions included replacing the RGSC and creating a PM task to replace the RGSCs on a specified frequency. Using IMC 0609, Appendix A, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding required a Phase 2 analysis. The Phase 1 screened this Mitigating Systems Cornerstone finding to Phase 2 because the finding represented a loss of HPCI system and/or function. The inspectors, with the assistance of the regional Senior Risk Analyst, performed a Phase 2 analysis using the Sapphire 8 Model. 109 hours of unavailability time was used for the analysis since HPCI was not required during the refueling outage from February 23, 2012 through April 29, 2012. Based on the results of the Phase 2 analysis, the inspectors determined the finding was of very low safety significance (Green).

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Annacone, Site Vice President
A. Brittain, Manager – Security
J. Burke, Director – Site Engineering
K. Croker, Supervisor – Emergency Preparedness
C. Dunsmore, Manager – Shift Operations
P. Dubrouillet, Manager - Training
G. Galloway, Acting Manager, Nuclear Oversight
C. George, Manager – BOP Systems
S. Gordy, Manager – Maintenance
L. Grzeck, Manager - Regulatory Affairs
M. Hamm, Superintendent – Mechanical Maintenance
F. Jefferson, Manager – Reactor Systems Engineering
J. Kalamaja, Manager – Operations
J. Krakuszeski, Plant General Manager
R. Mosier, Communication Specialist
A. Padleckas, Superintendent – Nuclear Operations Performance
D. Petrusic, Superintendent - Environmental and Chemistry
A. Pope, Manager - Nuclear Support Services
J. Price, Manager– Design Engineering
W. Richardson, Engineering
T. Roeder, Supervisor - Chemistry
T. Sherrill, Licensing Senior Technical Specialist
P. Smith, Superintendent – Electrical, Instrumentation, and Controls Maintenance
M. Talon, Buried Piping Program Manager
J. Terrell, Corporate Buried Piping Program Manager
M. Turkal, Lead Engineer - Technical Support
J. Vincelli, Manager – Environmental and Radiological Controls
B. Wilder, Engineering
E. Wills, Director – Site Operations

NRC Personnel

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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000325/2012004-01	NCV	Failure to Maintain Secondary Containment Operable During an OPDRV Activity. (Section 1R20)
05000325;324/2012004-02	NCV	Failure to Maintain Reliability and Availability of Emergency Response Equipment for Emergency Response Facilities. (Section 4OA2.2)

Opened

05000325;324/2012004-03	URI	EDG2 Wiring on ASSD Switch (Section 4OA2.3)
-------------------------	-----	---

Closed

05000325/2012-004-00	LER	High Pressure Coolant Injection (HPCI) Inoperable Due to Erratic Governor Operation (Section 4OA3.2)
----------------------	-----	--

Discussed

Temporary Instruction 2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walk-downs (Section 4OA5.1)
Temporary Instruction 2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walk-downs (Section 4OA5.1)
Temporary Instruction 2515/182	TI	Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase 1 (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

0AOP-13.0, Operation During Hurricane, Flood Conditions, Tornado, or Earthquake
0PEP-02.6, Severe Weather
2APP-UA-01, Annunciator Procedure for Panel UA-01
2APP-UA-28, Annunciator Procedure for Panel UA-28
2OP-43, Service Water System Operating Procedure
OPS-NGGC-1305, Operability Determinations

Nuclear Condition Reports

556860	556861	556862	556863	556864	556865
556866	556867	556868	556869	556870	557375
555023	545354	553946			

Work Orders

550098	550100	550102	550015	545859	545861
1828825	1828826	1643223	1775054		

Drawings

D-02778, Reactor Building Floor and Wall Sleeves Tabulation – Sheet No 1 Unit No 2
D-02779, Reactor Building Floor and Wall Sleeves Tabulation and Details – Sheet No 2
D-11597, Backdraft Damper with Extra Deep Frame
F-0424, Service Water Intake Structure Units 1 & 2 Ventilation System & Drainage Piping
LL-FB-02103, Reactor Building, Elevation -17'0", Fire Barrier Penetrations, RHR-HPCI Room North Wall

Miscellaneous

0PIC-LS001, Omnitrol (Valrec) Level Control Switch Model 613, Single Actuator
DBD-106, Hazards Analysis
Engineering Change 80408R0, Flooding Design Basis Update
Individual Plant Examination for External Events Submittal, June 1995
Link Seal Vendor Manual
Quick Hit Self-Assessment 541666-15, Emergency Action Level Functionality
SD-43, Service Water System
URS List of Flood Features Inspected
URS Near Term Force Recommendations 2.3: Flooding, Project Number 30703-007

Section 1R04: Equipment Alignment

Procedures

Procedure 2OP-18, Core Spray System Operating Procedure
1OP-17, RHR System Operating Procedure
2OP-10, Standby Gas Treatment System Operating Procedure

Drawings

D-25024, Reactor Building Core Spray System Piping Diagram
 9527-D-2025, sheets 1A and 1B, RHR System, Unit 1
 F-04073, Reactor Building Standby Gas Treatment Piping Diagram

Miscellaneous

DBD-10, Design Basis Document Standby Gas Treatment System
 SD-10, System Description Standby Gas Treatment System

Section 1R05: Fire ProtectionProcedures

0FPP-014, Control of Combustible, Transient Fire Loads, and Ignition Sources
 0PFP-CB, Control Building Pre-Fire Plans
 OPLP-01, Fire Protection Program Document
 OPLP-01.2, Fire Protection System Operability, Action, and Surveillance Requirements
 0PFP-013, General Fire Plan
 1PFP-RB, Reactor Building Pre-Fire Plans Unit 1
 2PFP-RB, Reactor Building Prefire Plans Unit 2
 OPT-34.11.2.0, Portable Fire Extinguisher Inspection
 1PFP-TB, Turbine Building Prefire plans

Section 1R06: Flood ProtectionNuclear Condition Reports

490292

Drawings

F-03347, East Yard Area – Units No. 1 & 2 Electrical Underground Duct Runs Manholes
 F-03343, East Yard Area – Units No. 1 & 2 Electrical Underground Duct Runs Plan

Section 1R07: Heat Sink PerformanceProcedures

0ENP-2704, Administrative Control of NRC Generic Letter 89-13 Requirements
 0ENP-2705, Service Water Heat Exchanger Thermal Performance Testing
 0PM-ACU500, Inspection and Cleaning of the RHR/Core Spray Room Aerofin Cooler Air Filters
 and Coolers
 0PM-STU500, Service Water Intake Structure Inspection and Cleaning
 0CM-ENG521, Perfex Cooler Inspection and Repair
 0E&RC-3212, Service/Circulating Water Chlorine Sampling
 1PM-MEC502, Nuclear Service Water Header Inspection
 1PM-MEC506, Conventional Service Water Header Inspection
 2PM-MEC501, Nuclear Service Water Header Inspection
 2PM-MEC505, Conventional Service Water Header Inspection
 0PT-08.1.4a, RHR Service Water System Operability Test – Loop A
 0AOP-18.0, Nuclear Service Water system Failure
 0AOP-19-0, Conventional Service Water System Failure

0AOP-37.1, Intake System Blockages
 0O1-03.4, Unit 0 Outside Auxiliary Operator Daily Check Sheets
 IPT-24.1-1, Service Water Pump and Discharge Valve Operability Test
 0AI-81, Water Chemistry Guidelines
 0A1-86, Service/Circulating Water Treatment Strategic Plan
 0SMP-SW1500, Sodium Hypochlorite Injection to the SW System

Nuclear Condition Reports

392541 507589 339272 539775 497132 542399

Work Orders

01582632 01324149

Drawings

BN 43.0.01, Service Water System

Calculations

OSW-0096, Calculation for Tube Plugging and Fouling of Service Water Safety Related Heat Exchangers
 OSW-0097, RHR and Core Spray Room Cooler Performance
 G0050C-04, Design Basis Heat Loads from Vital Heat Exchangers

Miscellaneous

LTAM-BNP-12-0009, Formal Water Hammer Analysis for Service Water
 DBD-43, Service Water System
 DBD-17, Residual Heat Removal System
 System Health Report, Q1-2012, RBCCW Unit 1
 System Health Report, Q1-2012, Service Water
 System Health Report, Q1-2012, Emergency Diesel Generators
 Program Health Report, Q1-2012, GL 89-13 Program
 EC-84365, Temporary Removal of Degraded Coating on Internal Surfaces of Service Water Pump Discharge Pipe Spools and Elbows
 EC-85258, Replace Nuclear and Conventional Service Water Pump Discharge Elbow
 2-E11-B002A, Final Eddy Current Inspection Report for RHR Heat Exchanger 2A, March 15, 2011
 EDG-3-JWC-2010, Final Eddy Current Inspection Report for EDG-3 Jacket Water Cooler May 18, 2010
 SD-63, Sodium Hypochlorite Injection System

Procedure Revision Requests

00549906 00549915 00549919 00549920 00549923 00549924
 00550041 00550333

Section 1R11: Licensed Operator Regualification

Procedures

0PEP-2.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency

OPEP-02.1, Initial Emergency Actions
 AOP-17, Turbine Building Closed Cooling Water System
 AOP-19, Conventional Service Water System Failure
 EM-78, Nuclear Power Facility Emergency Notification Form
 ENP-24.5, Reactivity Control Planning
 2EOP-01-LPC, Level/Power Control
 2EOP-01-RSP, Reactor Scram Procedure
 OPS-NGGC-1000, Fleet Conduct of Operations
 TRN-NGGC-0420, Conduct of Simulator Training and Evaluation

Miscellaneous

LORX-IPO-003 Scenario
 Technical Specifications 3.7.1, Residual Heat Removal Service Water System
 Technical Specifications 3.7.2.E, Service Water System and Ultimate Heat Sink

Section 1R12: Maintenance Effectiveness

Procedures

1OP-43, Service Water System Operating Procedure
 MNT-NGGC-0001, Maintenance Rework Program
 OPT-06.1, SLC System Operability Test
 0AOP-36.2, Station Blackout
 OPT-12.22, Load Test for SAMA Diesels
 ADM-NGGC-0101, Maintenance Rule Program

Nuclear Condition Reports

546346	554488	549265	519703	477622	436705
436703	409663	408997	401149	477561	477622
401149					

Work Orders

1802757	2104000	1868030	1746181
---------	---------	---------	---------

Drawings

Miscellaneous

FP-20234, R.P Adams CO, Inc, Strainers, Poro-Edge Automatic
 Technical Specification 3.7.2, Service Water System and Ultimate Heat Sink
 SD-05, Standby Liquid Control System
 Maintenance Rule Unavailability Reports, January 2012 through August 2012
 SAMA Diesels System Health Report, Q2-2012

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Procedures

0AI-144, Risk Management
 0AP-022, BNP Outage Risk Management
 0AP-025, BNP Integrated Scheduling

ADM-NGGC-0006, Online EOOS Model
 ADM-NGGC-0104, Work Management Process
 WCP-NGGC-0500, Work Activity Integrated Risk Management Program
 OPS-NGGC-1311, Protected Equipment

Nuclear Condition Reports
 559242

Miscellaneous
 BNP EOOS Risk Assessment
 BNP EOOS Risk Assessment Report for Work Week 36

Section 1R15: Operability Evaluations

Procedures
 OPT-12.2C, No. 3 Diesel Generator Monthly Load Test
 FP-20322, Diesel Generator Instruction Manual
 OPS-NGGC-1305, Operability Determinations
 OPS-NGGC-1307, Operational Decision making

Nuclear Condition Reports
 250203 310500 318607 548370 549420 558810

Work Orders
 542970

Drawings
 D-25028, Reactor Building Closed Cooling Water System
 F-09348, Diesel Generator No. 4 Circuits Control Wiring Diagram

Miscellaneous
 EDG 1-4 Generator Bearing Oil Analysis
 SD-39, Emergency Diesel Generators

Section 1R18: Plant Modifications

Procedures
 EGR-NGGC-0028 Engineering Evaluation
 0AI-68 Brunswick Nuclear Plant Response to Severe Weather Warnings

Engineering Changes
 EC 88431, Service Water Building Drain Hub Baffle Plate Installation
 EC 86304, Design Leak Tight Barriers at Reactor Bldg Rattle Spaces

Nuclear Condition Reports
 559173 490292

Drawings

D-02041, Service Water System Piping Diagram
 F-04024, Service Water Intake Structure Ventilation System & Draining Piping
 F-01027, Seismic Isolation Space

Miscellaneous

UFSAR Updated Final Safety Analysis Report

Section 1R19: Post Maintenance TestingProcedures

0PT-08.2.2C, LPCI/RHR System Operability Test
 0PT-80.5, Mid-Cycle Maintenance Outage Reactor Pressure Vessel Pressure Test

Nuclear Condition Reports

551048

Work Orders

1951825 2028895 2034614 2112268

Drawings

D-25026, Sheet 2A, Residual Heat Removal System, Unit 1

Miscellaneous

Technical Specifications 3.5.1, Emergency Core Cooling System - Operating

Section 1R20: Outage ActivitiesProcedures

0GP-01, Prestartup Checklist
 0GP-02, Approach to Criticality and Pressurization of the Reactor
 0GP-03, Unit Startup and Synchronization
 0GP-05, Unit Shutdown
 0GP-10, Rod Sequence Checkoff Sheets
 0AI-127, Primary Containment Inspection and Closeout
 0AP-22, BNP Outage Risk Management
 0OI-01-01, BNP Conduct of Operations Supplement
 0SP-12-001, EGM 11-003 OPDRV Activities

Nuclear Condition Reports

561831 561899 561173 562188

Drawings

D-20022 Sheet 1, Piping Diagram Extraction Steam System, Unit 1

Miscellaneous

Main Control Room (MCR) Logs
 Outage Control Center (OCC) Logs

Unit 1 Key Safety Function Component Status Sheets
Operations Standing Instruction 12-052

Section 1R22: Surveillance Testing

Procedures

OPT-07.2.4a, Core Spray System Operability Test – Loop A
0MST-RHR21Q, CSS and HPCI Hi Drywell Pressure Trip Unit Chan Cal
0MST-RCIC42R, RCIC Auto-actuation and Isolation Logic Sys Functional
OPT-12.12D, No. 4 Diesel Generator Monthly Load Test
OPT-08.2.2B, LPCI/RHR System Operability Test – Loop B
OPT-80.5, Mid-Cycle Maintenance Outage Reactor Pressure Vessel Pressure Test

Nuclear Condition Reports

547945

Work Orders

2107649

Drawings

D-25024, Reactor Building Core Spray System Piping Diagram

Miscellaneous

Technical Specification 3.5.1, Emergency Core Cooling System – Operating
UFSAR Section 6.3.3.7, Lag Times

Section 1EP6: Drill Evaluation

Procedures

0PEP-2.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency, or
General Emergency
0PEP-02.1, Initial Emergency Actions
0PEP-02.6.20, Dose Projection Coordinator
0PEP-03.4.8, Offsite Dose Projections for Monitored Releases
2EOP-01-RSP, Reactor Scram Procedure
EM-78, Nuclear Power Facility Emergency Notification Form
EMG-NGGC-0002, Offsite-Dose Assessment
OPS-NGGC-1000, Fleet Conduct of Operations

Nuclear Condition Reports

551255 551620 551698 552439

Section 4OA1: Performance Indicator Verification

Procedures

0E&RC-1006, Operation of the Reactor Building Sample Stations
0E&RC-2212, Calibration/Operation of Genie Gamma Spectroscopy System
REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data

Miscellaneous

BNP-PSA-069, NRC Mitigating System Performance Index (MSPI) Basis Document
 Unit 1 RHR MSPI Margin Reports, July 2011 to June 2012
 Unit 2 RHR MSPI Margin Reports, July 2011 to June 2012
 Unit 1 RHR MSPI Derivation Reports, July 2011 to June 2012
 Unit 2 RHR MSPI Derivation Reports, July 2011 to June 2012
 REG-NGGC-0009, Attachment 4 – MSPI Unavailability Data Sheets, July 2011 to June 2012
 REG-NGGC-0009, Attachment 6 – MSPI Unreliability Data Sheets, July 2011 to June 2012

Section 40A2: Identification and Resolution of Problems

Procedures

CAP-NGGC-0200, Condition Identification and Screening Process
 CAP-NGGC-0205, Condition Evaluation and Corrective Action Process
 CAP-NGGC-0206, Performance Assessment and Trending
 OERP, Radiological Emergency Response Plan
 OPLP-37, Equipment Important to Emergency Preparedness and ERO Response
 OPEP-02.6.21, Emergency Communicator
 OPEP-04.2, Emergency Facilities and Equipment
 ADM-NGGC-0119, Nuclear Safety Culture Program, Revision 01

Nuclear Condition Reports

AR 00201153, Adverse Trend - Failed ERFIS Multiplexer Modules
 ACE CR 542704, UPS-A Failure and Loss of ERFIS, PPC, Business Network

Miscellaneous

Down Time by Computer System Log
 NIT Key performance indicators
 ESR 98-00436, RAINS 99-0045, 50.59 Evaluation
 ESR 98-00436, RAINS 99-0045, 50.54q Evaluation

Section 40A3: Event Followup

Procedures

OPT-09.2, HPCI System Operability Test
 OPT-09.3, HPCI System – 165 PSIG Flow Test
 ADM-NGGC-0107, Equipment Reliability Process Guideline
 OPEP-02.1, Initial Emergency Actions
 OPEP-02.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency,
 and General Emergency
 OPEP-02.2.1, Emergency Action Level Bases

Nuclear Condition Reports

534364	552815	552984
--------	--------	--------

Work Orders

2107224	2107264	2107271	2107313
---------	---------	---------	---------

Drawings

1-FP-02039, General Electric Gas Control Piping Diagram
 D-02055, Piping Diagram, Carbon Dioxide & Hydrogen Systems, Units 1 & 2

Miscellaneous

10 CFR 50.72 Event Report 47893, High Pressure Coolant Injection Inoperable due to Erratic Governor Operation, May 2, 2012
 LER 1-2012-004-00, High Pressure Coolant Injection Inoperable due to Erratic Governor Operation, June 29, 2012
 System Description 19, High Pressure Coolant Injection System
 Technical Specification 3.5.1, Emergency Core Cooling Systems and Reactor Core Isolation Cooling
 Event Notification, Discovery of a Condition that Met the EAL Classification of an Unusual Event (After-the-Fact), August 2, 2012
 NUREG-1022, Event Reporting Guidelines
 Operator Logs, August 2, 2012
 SD-59, Hydrogen Water Chemistry System

Section 40A5: Other Activities

Procedures

EGR-NGGC-0209, Buried Piping Program, Rev. 3
 EGR-NGGC-0513, License Renewal Buried Piping and Tanks Inspection Program, Rev. 3
 0AOP-13.0, Operation During Hurricane, Flood Conditions, Tornado, or Earthquake
 0PEP-02.6, Severe Weather
 2APP-UA-01, Annunciator Procedure for Panel UA-01
 2APP-UA-28, Annunciator Procedure for Panel UA-28
 2OP-43, Service Water System Operating Procedure
 OPS-NGGC-1305, Operability Determinations
 MNT-NGGC-004, Scaffolding Control
 0PT-34.2.2.1, Fire Door, Pressure Boundary Door, ASSD Access/Egress Door, and Severe Weather/Flood Control Door Inspections
 0AI-68, Brunswick Nuclear Plant Response to Severe Weather Warnings
 0PEP-02.1.1, Emergency Control-Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency
 0PEP-02.6, Severe Weather
 0AOP-13.0, Operation During Hurricane, Flood Conditions, Tornado, or Earthquake

Nuclear Condition Reports

551646	551838	551964	550469	559173	556860
556861	556862	556863	556864	556865	556866
556867	556868	556869	556870	557375	555023
545354	553946				

Work Orders

550098	550100	550102	550015	545859	545861
1828825	1828826	1643223	1775054	2113607	

Work Requests

546632	546540	546541	546543	544971	546174
546823	546824	546203	546274	546278	

Drawings

D-11099, Reactor Building Miscellaneous Steel Pool Liners
D-2274, Diesel Cooling Water
D-25049, Reactor Building Piping Diagram Fuel Pool Cooling & Filtering System, Unit 1
D-26007, Reactor Building Fuel Pool Cooling & Filter System Plan EL 80'-0" & Sections
D-26009, Reactor Building Fuel Pool Cooling & Filter System Miscellaneous Plans & Sections
D-27010, Supplemental Spent Fuel Pool Cooling System
F-25008, Reactor Building Arrangement & Details, Fuel Pool
D-02778, Reactor Building Floor and Wall Sleeves Tabulation – Sheet No 1 Unit No 2
D-02779, Reactor Building Floor and Wall Sleeves Tabulation and Details – Sheet No 2
D-11597, Backdraft Damper with Extra Deep Frame
F-0424, Service Water Intake Structure Units 1 & 2 Ventilation System & Drainage Piping
LL-FB-02103, Reactor Building, Elevation -17'0", Fire Barrier Penetrations, RHR-HPCI Room
North Wall
1-FP-09319, Reactor Building Railroad Doors

Corrective Action Document

PRR 562261, Revise EGR-NGGC-0209 to strengthen the tie to the License Renewal Program

Miscellaneous

Calculation 2RB2-0012, Analysis for Spent Fuel Pool – Elevation of Top of Active Fuel
Engineering Change 80408R0, Flooding Design Basis Update
EPRI Report 1025286, Seismic Walk-down Guidance for Resolution of Fukushima Near-Term
Task Force Recommendation 2.3: Seismic
FP-75090, International Instruments INC, Instruments, Switchboard, Edgewise
System Description SD-43, Service Water System
UFSAR Section 9.1.3.3, Fuel Pool Cooling and Cleanup System, Safety Evaluation
Units 1 and 2, Flood Protection Feature 6BL, Service Water Building, 4' Elevation, Pipe
Penetration Seal\20-8" Pipe Sleeves
Unit 1, SWEL 1 List
Unit 1, SWEL 2 List
Unit 2, SWEL 1 List
Unit 2, SWEL 2 List
URS Post Fukushima Project, NTF Recommendation 2.3 Seismic Walk-down Training Record
URS Project Number 30703-007, Near Term Task Force Recommendation 2.3 Seismic Walk-
down Procedure
OPIC-LS001, Omnitrol (Valrec) Level Control Switch Model 613, Single Actuator
DBD-106, Hazards Analysis
Engineering Change 80408R0, Flooding Design Basis Update
Individual Plant Examination for External Events Submittal, June 1995
Link Seal Vendor Manual
Quick Hit Self-Assessment 541666-15, Emergency Action Level Functionality
SD-43, Service Water System

URS List of Flood Features Inspected
URS Near Term Force Recommendations 2.3: Flooding, Project Number 30703-007
Report Number 110311.401, Summary of Progress Energy Fleet Underground Piping and
Tanks with the Scope of NEI 09-14 (Rev. 1), prepared by Structural Integrity Associates,
Inc., dated 12/07/2011
Assessment Number 531636, Quick Hit Self Assessment for HNP and BNP Buried Piping
Program and the NRC TI-2515/182 Inspection, 08/15/2012
Specification 024-001 for Special Doors

Section 40A7: Licensee-Identified Violations

Procedures

OPEP-02.1, Initial Emergency Actions
OPEP-02.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency,
and General Emergency
OPEP-02.2.1, Emergency Action Level Bases

Nuclear Condition Reports

552815 552984

Drawings

1-FP-02039, General Electric Gas Control Piping Diagram
D-02055, Piping Diagram, Carbon Dioxide & Hydrogen Systems, Units 1 & 2

Miscellaneous

Event Notification, Discovery of a Condition that Met the EAL Classification of an Unusual Event
(After-the-Fact), August 2, 2012
NUREG-1022, Event Reporting Guidelines
Operator Logs, August 2, 2012
SD-59, Hydrogen Water Chemistry System