



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

April 30, 2012

Mr. Christopher Burton, Vice President
Carolina Power and Light Company
Shearon Harris Nuclear Power Plant
P. O. Box 165, Mail Code: Zone 1
New Hill, North Carolina 27562-0165

**SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC INTEGRATED
INSPECTION REPORT 05000400/2012002 AND 05000400/2012501**

Dear Mr. Burton:

On March 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris reactor facility Unit 1. The enclosed inspection report documents the inspection results which were discussed on April 10, 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 finding of very low safety significance (Green) was identified during this inspection. This finding was determined to involve a violation of NRC requirements. Further, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating this violation as non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest this non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Shearon Harris facility.

If you disagree with a 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 Shearon Harris facility.

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 Agencywide Document Access and Management 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.: 50-400
License No.: NPF-63

Enclosure: NRC Inspection Report 05000400/2012002 and 05000400/2012501
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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4

cc w/encl. (continued)

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CP&L

5

Letter to Christopher L. Burton from Randall A. Musser dated April 30, 2012

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC INTEGRATED
INSPECTION REPORT 05000400/2012002 AND 05000400/2012501

Distribution w/encl:

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No. 50-400

License No. NPF-63

Report No. 05000400/2012002, 05000400/2012501

Licensee: Carolina Power and Light Company

Facility: Shearon Harris Nuclear Power Plant, Unit 1

Location: 5413 Shearon Harris Road
New Hill, NC 27562

Dates: January 1, 2012 through March 31, 2012

Inspectors: J. Austin, Senior Resident Inspector
P. Lessard, Resident Inspector
R. Patterson, Acting Resident Inspector

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

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SUMMARY OF FINDINGS

IR 05000400/2012002, 05000400/2012501; January 1, 2012 – March 31, 2012; Shearon Harris Nuclear Power Plant, Unit 1; Identification and Resolution of Problems.

The report covers a three month period of inspection by resident inspectors and a regional senior project engineer. One NRC-identified and one licensee identified finding of very low safety significance (Green) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects are 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 10 CFR Part 50, Appendix B, Criterion XVI, for the licensee's failure to correct a condition adverse to quality affecting the Reactor Auxiliary Building Emergency Exhaust System (RABEES). Specifically, the licensee failed to resolve the effects of the degraded condition of dampers that failed to close which resulted in RABEES being declared inoperable. The licensee experienced failures in RABEES dampers in 2009, and did not take adequate corrective actions to correct the condition adverse to quality. The licensee entered the violation into their Corrective Action Program (CAP) as Action Request (AR) #513163 and plans to change the springs in the actuators and to re-evaluate the long term strategy for the dampers.

The failure of the licensee to take adequate corrective actions to address the cause of the RABEES dampers failing to close was a performance deficiency (PD). The PD was more than minor because it affected the Barrier Performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, damper AV-D52SB failed to close which led RABEES to be inoperable. The failure of the damper did not result in the loss of functionality of the RABEES system, however the licensee entered the Limiting Condition for Operation and declared RABEES inoperable. Using Manual Chapter 0609.04, Phase 1 Initial Screening and Characterization of Findings, the issue was determined to have very low safety significance (Green), because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building. This finding has a crosscutting aspect in the area of Problem Identification and Resolution in the Corrective Action component because the licensee did not take appropriate corrective actions to address safety issues in a timely manner. [P.1(d)] (Section 4OA2)

Enclosure

B. Licensee-Identified Violations

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

Enclosure

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near Rated Thermal Power (RTP) for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

.1 Offsite and Alternate AC Power Readiness

a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems, including conditions that could lead to an extended drought as a result of high temperatures. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors also reviewed Correction Action Program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant system:

- Offsite AC Power (Switchyard)

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- 'B' Emergency Service Water (ESW) while 'A' ESW was inoperable for corrective maintenance on March 7, 2012;

Enclosure

- 'A' Emergency Diesel Generator (EDG) Starting Air system following maintenance on March 21, 2012; and
- 'A' Emergency Diesel Fuel Oil system following maintenance on March 21, 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, applicable portions of the UFSAR, Technical Specification (TS) requirements, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On March 29, 2012, the inspectors performed a detailed system alignment inspection of the instrument and service air system to verify the functional capability of the system. This system was selected because it was considered 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, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that auxiliary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders (WOs) was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program (CAP) database to ensure that system equipment alignment problems were being identified and appropriately resolved. The documents used for the walkdown and issue review are listed in the Attachment.

Enclosure

The inspectors reviewed the following AR associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR #508643, "C" Air Compressor Motor Overload Light Energized

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Quarterly Resident Inspector Tours

a. Inspection Scope

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

- Reactor Auxiliary Building (RAB) Heating, Ventilation and Air Conditioning (HVAC) Equipment Room
- Demineralizer Access Area
- RAB Exhaust Fan Area
- Termination Cabinet Room
- 'A' Switchgear Ventilation Room
- 'B' Switchgear Ventilation Room

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 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 correct action program.

Enclosure

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR #508458, Supply Fault Alarm for Fire Detection
- AR #526515, Unexpected Fire Alarm due to Heat Gun Usage

b. Findings

No findings were identified.

1R06 Flood Protection Measures

.1 Review of Areas Susceptible to Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures (AOPs), for licensee commitments. The specific documents reviewed are listed in the Attachment. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the chilled water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following plant area(s) to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- Control Room Heating and Ventilation Room

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program

.1 Licensed Operator Regualification Activities in Simulator

a. Inspection Scope

On February 23, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew

Enclosure

performance problems and training was being conducted in accordance with licensee procedures. The licensed operators responded to a pressurize level instrument failure, loss of an electrical safety BUS (1A-SA), failure of 'B' safety injection train and a small break loss of coolant accident. 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
- Ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications

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

b. Findings

No findings were identified.

.2 Licensed Operator Performance in the Actual Plant/Main Control Room

a. Inspection Scope

On March 22, 2012, the inspectors observed operators in the plant's main control room during Steam Generator Power Operated Relief Valve Testing. The inspectors evaluated the following areas:

- Operator compliance and use of plant procedures, including procedure entry and exit, performing procedure steps in the proper sequence, procedure place-keeping, and technical specification entry and exit;
- Control board/in-plant component manipulations;
- Communications between crew members;
- Use and interpretation of plant instruments, indications, and alarms; diagnosis of plant conditions based on instruments, indications, and alarms;
- Use of human error prevention techniques, such as pre-job briefs and peer checking;
- Documentation of activities, including initials and sign-offs in procedures, control room logs, technical specification entry and exit, entry into out-of-service logs; and
- Management and supervision of activities, including risk management and reactivity management.

Enclosure

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment. The inspectors evaluated three degraded performance issues involving the following risk significant components:

- AR #508110, Rod Control Urgent Alarm
- AR #515381, Breaker 1B21-SB-5A (Control Room Exhaust Valve) failed on 'A' Phase
- AR #506305, Seismic Monitor Playback Unit Power/Battery Switch not working

The inspectors focused on the following attributes:

- Implementing appropriate work practices;
- Identifying and addressing common cause failures;
- Scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- Characterizing system reliability issues for performance;
- Charging unavailability for performance;
- Trending key parameters for condition monitoring;
- Ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- Verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR #510355, Refueling Water Storage Tank (RWST) Sodium Increasing
- AR #522741, "A" EDG Exceeded Maintenance Rule Performance Criteria

b. Findings

No findings were identified.

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

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

- Emergent risk evaluation for a rod control malfunction on January 9, 2012. Risk remained green;
- Elevated risk condition due to scheduled testing while 'B' main Feedwater Regulation Valve was in manual on February 1, 2012, qualitative yellow;
- Emergent risk evaluation for Nuclear Instrument Failure (NI-44) on February 2, 2012. Risk remained green;
- Emergent risk evaluation for troubleshooting 'B' EDG lock out relay on February 6, 2012. Risk remained green; and
- Elevated risk condition due to unexpected inoperability of the 'A' ESW and 'A' EDG on March 6, 2012. Risk remained green.

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.

The inspectors reviewed the following AR associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR #514843, Untimely risk assessment for ACCU-6.

b. Findings

No findings were identified.

Enclosure

1R15 Operability Evaluationsa. Inspection Scope

The inspectors selected the following five potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment.

- AR #505043, 'B' ESW Exhaust Fan (E-88B) did not secure when required;
- AR #512498, "B" Reactor Coolant Drain Tank Pump (primary) Breaker Tripped Free;
- AR #508949, 'B' Main Feed Isolation Valve Nitrogen Leak;
- AR #514415, Shift manager office area heating and ventilation fan deficiency; and
- AR #524247, Voids identified during post maintenance testing for the 'B' auxiliary feed water pump.

b. Findings

No findings were identified.

1R18 Plant Modificationsa. Inspection Scope

The following engineering design package was reviewed and selected aspects were discussed with engineering personnel:

- Temporary modification: EC #83956, Remove Valve Internals from 1SW-35 (Emergency Service Water Screen Wash Pump 1A-SA Suction Isolation Valve).

This document and related documentation were reviewed for adequacy of the associated 10 CFR 50.59 safety evaluation screening, consideration of design parameters, implementation of the modification, post-modification testing, and relevant procedures, design, and licensing documents were properly updated. The inspectors observed ongoing and completed work activities to verify that installation was consistent

Enclosure

with the design control documents. The modification EC #83956 removed the internals from an emergency service water valve, due to flow restrictions resulting from corrosion.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

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

<u>Test Procedure</u>	<u>Title</u>	<u>Related Maintenance Activity</u>	<u>Date Inspected</u>
MST-I0047	Nuclear Instrumentation System Power Range (N44) Calibration	Work Order (WO) #2038905, N44 Meter Range/Rate Switch Defective	February 3, 2012
OST-1214	Emergency Service Water System Operability, Train 'A', Quarterly Interval	WO #1978493, 1SW-20 (Strainer Backflush Valve), Stroke Time Decreased	March 1, 2012
OST-1085 and OP-155	'A' Emergency Diesel Generator (EDG) Operability, Semiannual Interval and Operating Procedure (OP) for the EDGs	EC #82234, Eliminate EDG Control Air Vulnerability	March 2, 2012
OPT-1512	Essential Chilled Water Turbopak Units Quarterly Inspection/Checks Modes 1-6	WO #1896941, Remove and Replace Relief Valve 1CH-10 ('A' Makeup Tank Inlet Relief Valve) and WO #1825937, Lubrication for 'A' Chiller Components	March 28, 2012
EPT-033 and EPT-433	Emergency Safeguards Sequencer (ESS) System Test and ESS Relay trend and Analysis	WO #1992753, 'A' Sequencer Load Block 5 Relay Replacement	March 30, 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: the effect of

Enclosure

testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing, and test documentation was properly evaluated. The inspectors evaluated the activities against TS and the UFSAR to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R22 Surveillance Testing

.1 Routine Surveillance Testing

a. Inspection Scope

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

- OST-1036, Shutdown Margin Calculation Modes 1-5 on January 10, 2012
- OST-1861, Remote Shutdown: Individual Component Tests, 18 Month Interval, Modes 1-3 on March 9, 2012
- OST-1841, Engineered Safety Features (ESF) Response Time Measurement for 'C' Charging Safety Injection Pump, 18 Month Interval, Modes 1- 6 on March 22, 2012
- MST-I0001, 'A' Train Solid State Protection System Actuation Logic and Master Relay Test on March 28, 2012
- EST-223, Main Steam Safety Valve Test Using Assist Device on March 30, 2012

The inspectors reviewed the following AR associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR #508463, Incorrect section of OST-1036 (shutdown margin calculation modes 1-5) performed

Enclosure

b. Findings

No findings were identified.

.2 In Service Testing (IST) Surveillance

a. Inspection Scope

The inspectors reviewed the performance of OST-1191, Steam Generator Power Operated Relief Valves (PORVs) and Block Valve Operability Test Quarterly Interval Modes: 1-4 on March 22, 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. This surveillance satisfies the IST requirements for the steam generator PORVs and PORV isolation valves in the Main Steam system. The inspectors evaluated selected portions of the following areas:

- Testing procedures and methods
- Acceptance criteria
- Compliance with the licensee's IST program, TS, selected licensee commitments, and code requirements
- Range and accuracy of test instruments

b. Findings

No findings were identified.

1EP6 Emergency Planning Drill Evaluation

a. Inspection Scope

The inspectors observed an emergency preparedness drill conducted on March 6, 2012, to verify licensee self-assessment of classification, notification, and protective action recommendation development in accordance with 10 CFR 50, Appendix E.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

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

Initiating Events Cornerstone

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Power Changes per 7000 Critical Hours
- Unplanned Scrams with Complications

The inspectors sampled licensee submittals for the performance indicators listed above for the period from the first quarter 2011 through the fourth quarter 2011. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC Inspection reports for the period to validate the accuracy of the submittals. Specific documents reviewed are described in the Attachment to this report.

The inspectors reviewed the following AR associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR #471963, Air Handler #3 (AH-3) Developed Service Water Leak

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

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

a. Inspection Scope

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

Enclosure

b. Findings

No findings were identified.

.2 Selected Issue Follow-up Inspection: RABEES Dampers Failure to Fully Close

a. Inspection Scope

The inspectors selected AR #513163, Damper Failed to Fully Close, for detailed review. This AR identified a RABEES damper failing to shut and referenced AR #509846 which identified another failure of a RABEES damper on January 17, 2012. The inspectors reviewed the licensee's corrective actions program for RABEES dampers failing to shut 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, and 10 CFR 50, Appendix B.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, for the licensee's failure to correct a condition adverse to quality affecting the RABEES. Specifically, the licensee failed to resolve the effects of the degraded condition of dampers that failed to close which resulted in RABEES being declared inoperable. The licensee experienced failures in RABEES dampers in 2009, which are documented in AR #322771, RAB Exhaust Dampers Failed to Fully Shut, and did not take adequate corrective actions to correct this condition adverse to quality. The licensee has entered the violation into their CAP as AR #513163 and plans to change the springs in the actuators and to re-evaluate the long term strategy for the dampers.

Description: During the review of corrective action documents and work orders associated with the RABEES dampers the inspectors found that the licensee has experienced problems with RABEES dampers being inoperable due the failure to completely close since September 1991. A significant root cause investigation was conducted in 2001 after the repetitive failures of AV-D11SA and AV-33SA, in which no root cause was found but the lack of lubrication was identified as a contributing factor. The repeated failures of AV-D79SB and AV-D11SA prompted the licensee to initiate AR #322771, RAB Exhaust Dampers Failed to Fully Shut, on March 3, 2009, after the same dampers failed for the second and fifth times respectively. During the investigation associated with AR #322771, the licensee found eight other damper failures and concluded that the problem would be alleviated by lubrication and cycling of the dampers. The licensee also concluded in the same Adverse Condition Investigation that for some dampers the failure was likely due to the degradation of the actuator springs, particularly in dampers with small available margin between the actuator spring minimum closing torque and damper required torque. The licensee replaced the actuator spring

Enclosure

for AV-D11SA and AV-D79SB, but did not implement a replacement plan for the remaining dampers with low margin. The licensee rebuilt the actuator for AV-D52SB and measured the torque required to close the damper at values slightly higher than maximum value when the position arm was coming in contact with the limit switches; the licensee determined this was acceptable on February 3, 2009. The licensee lubricated and cycled damper AV-D52SA, the closing torque of the damper was also measured and found to be narrowly within the acceptance criteria on January 18, 2010. Dampers AV-D12SB and AV-D52SA failed to close on January 17, 2012, and January 30, 2012, respectively. The inspectors concluded that the licensee failed to take the adequate corrective actions to correct the cause of the RABEES dampers failure to close.

Analysis: The failure of the licensee to take adequate corrective actions to address the cause of the RABEES dampers failing to close was a performance deficiency (PD). The PD was determined to be more than minor because it affected the Barrier Performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, damper AV-D12SB failed to close which led RABEES to be declared inoperable. Using Manual Chapter 0609.04, Phase 1 Initial Screening and Characterization of Findings, the issue was determined to have very low safety significance (Green), because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building. The failure of the damper did not result in the loss of functionality of the RABEES system, however the licensee entered the Limiting Condition for Operation and declared RABEES inoperable. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution in the Corrective Action component because the licensee did not take appropriate corrective actions to address safety issues in a timely manner. [P.1(d)]

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Actions, states in part, measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance's are promptly identified and corrected. Contrary to the above, the licensee failed to take adequate corrective action to correct the RABEES dampers failing to close, a condition adverse to quality. The violation occurred from February 3, 2009, to January 31, 2012. The licensee generated EC #73893, Bettis Actuator Spring Replacement for RABEES Damper, plans to change the springs in the actuators and has entered the violation into their CAP as AR #513163. Because the licensee entered the issue into their 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 05000400/2012002-01: Failure to Correct the Reactor Auxiliary Building Emergency Exhaust System Dampers Failure to Close.

Enclosure

4OA3 Follow-up of Events

.1 (Closed) Licensee Event Report (LER) 05000400/2011-002), Emergency Diesel Generator Inoperable Due to Mechanical Governor Speed Setting Drift

On December 20, 2011, at 8:40 a.m., the 1B-SB Emergency Diesel Generator (EDG) was declared inoperable due to the drift of the speed setting for the mechanical governor. The licensee's investigation identified one violation which is documented in Section 4OA7 of this report. The inspectors determined that the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem and reached reasonable conclusions as to the root and contributing causes of the event. The inspectors also concluded that the licensee identified reasonable and appropriate corrective actions for each root and contributing cause and that the corrective actions appeared to be prioritized commensurate with the safety significance of the issues. This Licensee Event Report is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 10, 2012, the inspector presented the inspection results to Mr. Burton, and other members of the licensee staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection period.

Enclosure

4OA7 Licensee-Identified Violations

The following findings 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 Part 50, Appendix B, Criterion XVI, Corrective Actions, states in part, measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Shearon Harris Nuclear Plant Unit One Technical Specifications (TS) 3.8.1, A.C. Sources, requires in part, that two separate and independent diesel generators shall be operable in modes 1, 2, 3 and 4. With one diesel generator inoperable the TS requires that the diesel generator be restored to operable status within 72 hours or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours. Contrary to the above, the licensee failed to promptly identify and correct the 'B' EDG mechanical governor speed setting drift, a condition adverse to quality. The condition existed from April 2, 2011, to December 21, 2011. This resulted in the 'B' EDG being inoperable for longer than the TS 3.8.1 Allowed Outage Time. The inspectors determined that an SDP Phase 2 analysis was required based on the finding representing an actual loss of safety function for a single train in excess of its TS allowed outage time. The Phase 2 analysis yielded a potential greater-than-green result and the issue was given to a Senior Reactor Analyst for a Phase 3 analysis to be performed. The Phase 3 analysis determined this issue to be of very low risk significance (i.e., Green) due to the low likelihood of events that could cause a sustained loss of offsite and onsite electrical power. Upon discovery of this violation the licensee put in place compensatory measures to ensure that the mechanical governor speed drift will not interfere with the electronic governor and plans to change the system for both the 'B' and the 'A' EDG. The licensee has entered the violation into their CAP as AR #505470.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

C. Burton, Vice President Harris Plant
D. Corlett, Supervisor, Licensing/Regulatory Programs
J. Dufner, Director, Engineering
D. Griffith, Training Manager
K. Holbrook, Manager, Support Services
E. Kapopoulos, Plant General Manager
B. McCabe, Manager, Nuclear Oversight
M. Parker, Superintendent, Radiation Control
M. Robinson, Superintendent, Environmental and Chemistry
T. Slake, Manager, Security
J. Warner, Manager, Outage and Scheduling
F. Womack, Manager, 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

Title

05000400/2012002-01	NCV	Failure to Correct the Reactor Auxiliary Building Emergency Exhaust System Dampers Failure to Close. (Section 4OA2)
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Closed

05000400/2011-002	LER	Emergency Diesel Generator Inoperable Due to Mechanical Governor Speed Setting Drift. (Section 4OA3)
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LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Partial System Walkdown

- 'B' Emergency Service Water system:
- Procedure OP-139, Emergency Service Water System,
- Drawing 2165-S-0547 and 0548, Simplified Flow Diagram Emergency Service Water System

Complete System Walkdown

- CPL-2165-S-0800 and Sheet 02, Service Air System
- CPL-2165-S-0801 and Sheet 5&6, Instrument Air System

Section 1R05: Fire Protection

- FPP-001 Fire Protection Program Manual
- FIR-NGGC-0009, NFPA 805 Transient Combustibles And Ignition Source Controls Program
- FPP-013, Fire Protection – Minimum Requirements, Mitigating Actions and Surveillance Requirements
- FPP-012-02-RAB261, Reactor Auxiliary Building Elevation 261 Fire Pre-Plan
- FPP-012-04-DBG, Diesel Generator Building Fire Pre-Plan
- FPP-012-01-CNMT, Containment Building Fire Pre-Plan
- FPP-012-03-FHB, Fuel Handling Building Fire Pre-Plan
- FPP-012-07-TB, Turbine Building Fire Pre-Plan
- FPP-012-06-WPB, Waste Processing Building Fire Pre-Plan
- FPP-012-08-SEC, Out Building Fire Pre-Plan
- FPP-012-09-LAF, Large Area Fire Pre-Plan
- FPP-012-02-RAB 236, Reactor Auxiliary Building Elevation 236 Fire Pre-Plan
- FPP-012-02-190-216, Reactor Auxiliary Building Elevations 190 and 216 Fire Pre-Plan
- FPP-012-02-RAB286, Reactor Auxiliary Building Elevation 286 Fire Pre-Plan
- FPP-012-02-RAB305-324, Reactor Auxiliary Building Elevations 305 and 324 Fire Pre-Plan

Section 1R06: Flood Protection Measures

UFSAR Sections

- 2.4.10, Flooding Protection Requirements
- 3.6A.6, Flooding Analysis

Calculations

- Calculation #PRA-F/E-7, RAB Unit 1 Elevation 286 Compartment Flood Analysis for Switchgear HVAC Rooms

Procedures

- AOP-022, Loss of Service Water
- OP-139, Service Water System

Section 1R11: Licensed Operator Requalification ProgramBenchmark Tests

- SST-001, "Steady State Accuracy and Stability Test", Performed 11/16/09, 12/15/10
- SST-002, "Steady State Accuracy and Stability Test", Performed 11/16/09, 12/15/10
- SST-003, "Steady State Accuracy Test", Performed 11/16/09, 12/15/10
- TT-001, "Reactor Trip", Performed 10/10

Job Performance Measure (JPM) Packages

- Transfer Control to The ACP
- Reset Turbine Driven Aux Feedwater Pump
- Isolate Ruptured SG – MSIV Will Not Close
- Place Containment Cooling in the Maximum Cooling Mode
- Classify an Event – ALERT

General Documentation Reviewed

- Biennial written examination for 2010 – weeks 1 through 5
- Calculation E-5525, Safe Shutdown in Case of Fire
- Remedial Action Plan – 2009 – 2010
- Requal attendance records 2009-2010
- EOP-User's Guide, Part 4, Rev 29
- LERs 2009 to 2010

Procedures

- OSP-NGGC-1000, Fleet Conduct of Operations, Revision 3
- Operations Management Manual, OMM-001, Operations Administrative Requirements, Rev 92
- Training Administrative Procedure (TAP) -403, Examination and Testing, Rev 19
- TAP 410, NRC License Examination Security Program, Rev 15
- TAP-412, Simulator Operations, Maintenance and Testing, Rev 8
- Training Program Procedure (TPP)-206 Training Program Procedure-Simulator Rev 10

- TPP- 306, Licensed Operator Continuing Training Program, Revision 20
- TRN-NGGC-0002, Performance Review and Remedial Training, Rev 0
- TRN-NGGC-0420, Conduct of Simulator Training and Evaluation, Rev 0,
- TRN-NGGC-0440, Rev 0
- TRN-NGGC-1000, Conduct of Training, Rev 3
- AOP- 004, Remote Shutdown
- HNP-E/ELEC-0001 Appendix 1 Compliance Assessment by Scenario
- TRN-NGGC-1000, Conduct of Training, Rev 3

Section 1R12: Maintenance Effectiveness

- NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
- ADM-NGGC-0101, Maintenance Rule Program

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

- OMP-003, Outage Shutdown Risk Management
- OMM-001, Conduct of Operations
- WCP-NGGC-1000, Conduct of On-Line Work Management
- OPS-NGGC-1311, Protected Equipment
- WCM-001, On-line Maintenance
- ADM-NGGC-0006, Online Equipment Out of Service (EOOS) Models for Risk Assessment

Section 1R15: Operability Evaluations

- OPS-NGGC-1305, Operability Determinations

Section 1R19: Post Maintenance Testing

- AP-929, Troubleshooting Guide
- WO #1896941-02, 1CH-10, Pretest Spare Valve
- Drawing 5-S-0998 S02, HVAC 'A' Essential Services Chilled Water Unit

Section 4OA1: Performance Indicator Verification

- NEI 99-02, Regulatory Assessment Performance Indicator Guideline
- Calculation HNP-F/PSA-0068, NRC Mitigating System Performance Index Basis Document for Harris Nuclear Plant

Section 4OA2: Identification and Resolution of Problems

- CAP-NGGC-0200, Condition Identification and Screening Process
- CAP-NGGC-0205, Condition Evaluation and Corrective Action Process
- CAP-NGGC-0206, Performance Assessment and Trending

- CL-ME0023, Maintenance Checklist
- EC-73893, Bettis Actuator Spring Replacement for RABEES Dampers, Rev. 0
- WO # 380739, Perform MPT-M0075 GH-Bettis Pneuma
- WO # 1078993, Perform CM-M0222 Bettis Pneumatic Op
- EIR 20120021, RAB Emergency Exhaust
- CAP-NGGC-0200 Corrective Action Program
- AR #322771, RAB Exhaust Dampers Failed to Fully Shut
- AR #509846, M, AV-D12SB-1, Damper will not Shut
- AR #513163, Damper will not Fully Shut