



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

September 8, 2011

Mr. William Jefferson, Jr.  
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 PROBLEM  
IDENTIFICATION AND RESOLUTION INSPECTION REPORT  
05000400/2011009**

Dear Mr. Jefferson:

On July 29, 2011, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris Nuclear Power Plant Unit 1. The enclosed report documents the inspection results, which were discussed on July 29, 2011, with you and other members of your staff.

The inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of plant equipment and activities, and interviews with station personnel.

On the basis of the samples selected for review, the team concluded that, in general, problems were properly identified, evaluated, and corrected. There was one green finding identified during this inspection associated with the effectiveness of corrective actions to prevent recurrence (CAPR) of a significant condition adverse to quality. The team also identified examples of issues not being entered into the correction adverse program (CAP) as well as some weaknesses in the evaluations and corrective actions for issues entered into the CAP. Weaknesses were also identified related to your adherence to site procedures associated with the self-assessment program and the use of operating experience.

This report documents one NRC-identified finding of very low safety significance (Green) which was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your CAP, the NRC is treating the violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC's Enforcement Policy. If you contest the NCV in this report, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, 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, U.S. Nuclear Regulatory

Commission, Washington, D.C. 20555-0001; and the NRC Senior Resident Inspector at the Shearon Harris facility. In addition, if you disagree with the crosscutting aspect assigned to the finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, RII, and the NRC Senior Resident Inspector at the Shearon Harris facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the 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/*

George T. Hopper, Chief  
Reactor Projects Branch 7  
Division of Reactor Projects

Docket No. 50-400  
License No. NPF-63

Enclosure: Inspection Report 05000400/2011009  
w/Attachment: Supplemental Information

cc w/encl. (see page 3)

Commission, Washington, D.C. 20555-0001; and the NRC Senior Resident Inspector at the Shearon Harris facility. In addition, if you disagree with the crosscutting aspect assigned to the finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, RII, and the NRC Senior Resident Inspector at the Shearon Harris facility.

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Letter to William Jefferson, Jr. from George T. Hopper dated September 8, 2011

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT – NRC PROBLEM  
IDENTIFICATION AND RESOLUTION INSPECTION REPORT  
05000400/2011009

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No.: 50-400

License No.: NPF-63

Report No.: 05000400/2011009

Licensee: Carolina Power and Light Company

Facility: Shearon Harris Nuclear Power Plant, Unit 1

Location: New Hill, NC

Dates: July 11 - 15, 2011  
July 25 - 29, 2011

Inspectors: P. Lessard, Resident Inspector, Harris  
J. Nadel, Resident Inspector, Surry  
M. King, Senior Project Engineer, Team Leader  
A. Sengupta, Reactor Inspector

Approved by: G. Hopper, Chief,  
Reactor Projects Branch 7  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000400/2011009; July 11 – 29, 2011; Shearon Harris Nuclear Power Plant, Unit 1; Biennial Inspection of Problem Identification and Resolution Program.

The inspection was conducted by a senior project engineer, a reactor engineer, and two resident inspectors. One NRC-identified finding of very low safety significance (Green) was 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. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

### Identification and Resolution of Problems

The inspectors concluded that, in general, problems were properly identified, evaluated, prioritized, and corrected. The licensee was effective at identifying problems and entering them into the corrective action program (CAP) for resolution, as evidenced by the relatively few number of deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. However, the inspectors did identify a minor violation of NRC requirements and seven additional minor performance deficiencies for issues that met the identification criteria set forth in the CAP guidance which had not been previously identified. Generally, prioritization and evaluation of issues were adequate, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective and implemented in a timely manner. However, the inspectors identified a non-cited violation of NRC requirements, documented in section 40A2.a.3.1, and two minor performance deficiencies associated with the licensee's prioritization and evaluation of issues. Additionally, inspectors identified a minor performance deficiency in the area of effectiveness of corrective actions.

The inspectors determined that overall; audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and appropriate corrective actions were developed to address the issues identified. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work, and plant operations. However, inspectors did identify one minor performance deficiency related to your adherence to site procedures associated with the self-assessment program and one minor performance deficiency related to your adherence to site procedures associated with the use of operating experience.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors determined that personnel at the site felt free to raise safety concerns to management and use the CAP to resolve those concerns. However, inspectors did identify a vulnerability associated with the handling of potential safety conscious work environment issues identified through CAP program investigations.

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### Cornerstone: Mitigating Systems

- Green: An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to take adequate corrective action to preclude repetition of a significant condition adverse to quality associated with the oversight of the Quality Control (QC) organization at Harris. The licensee failed to take adequate corrective actions to address the cause of QC's acceptance of electrical termination errors which occurred during Refueling Outage (RFO) - 15 necessary to preclude related errors which occurred in RFO-16. The licensee entered this violation in their corrective action program as Nuclear Condition Report (NCR) 479478.

The inspectors determined that failure of the licensee to take adequate corrective actions to address the cause of QC's acceptance of electrical termination errors which occurred in RFO-15 necessary to preclude related errors which occurred in RFO-16 was a performance deficiency (PD). The PD was determined to be more than minor because if left uncorrected, the PD has the potential to lead to a more significant safety concern. Specifically, failure to adequately correct the cause of QC's acceptance of electrical termination errors could result in unidentified wiring errors in safety related equipment associated with the Mitigating Systems cornerstone. In accordance with IMC 0609, Attachment 4, Table 4a, "Phase 1 – Initial Screening and Characterization of Findings", the finding was determined to be of very low safety significance (Green) because the finding is not a design deficiency, did not result in an actual loss of system or single train function, and was not potentially risk significant due to external events. The inspectors determined that this finding was directly related to the cross-cutting aspect of thoroughness of evaluation within the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not thoroughly evaluate the problems leading to QC's acceptance of electrical termination errors which occurred in RFO-15 and develop adequate corrective actions to address the cause, and as a result, corrective actions did not preclude repetition of similar QC errors in RFO-16. (P.1(c)) (Section 40A2.a.3.1)

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA2 Problem Identification and Resolution

##### a. Assessment of the Corrective Action Program

##### (1) Inspection Scope

The inspectors reviewed the licensee's CAP procedures which described the administrative process for initiating and resolving problems primarily through the use of NCRs. To verify that problems were being properly identified, appropriately characterized, and entered into the CAP, the inspectors reviewed NCRs that had been issued between September 2009 and June 2011, including a detailed review of selected NCRs associated with the following risk-significant systems: Emergency Service Water System (ESW), Auxiliary Feedwater System (AFW), High Head Safety Injection System (HHSI), and risk significant portions of the Chemical Volume Control System (CVCS). Where possible, the inspectors independently verified that the corrective actions were implemented as intended. The inspectors also reviewed selected common causes and generic concerns associated with root cause evaluations to determine if they had been appropriately addressed. To help ensure that samples were reviewed across all cornerstones of safety identified in the NRC's Reactor Oversight Process (ROP), the inspectors selected a representative number of NCRs that were identified and assigned to the major plant departments, including operations, maintenance, engineering, emergency preparedness, health physics, chemistry, and security. These NCRs were reviewed to assess each department's threshold for identifying and documenting plant problems, thoroughness of evaluations, and adequacy of corrective actions. The inspectors reviewed selected NCRs, verified corrective actions were implemented, and attended meetings where NCRs were screened for significance to determine whether the licensee was identifying, accurately characterizing, and entering problems into the CAP at an appropriate threshold.

The inspectors conducted plant walkdowns of equipment associated with the selected systems and other plant areas to assess the material condition and to look for any deficiencies that had not been previously entered into the CAP. The inspectors reviewed NCRs, maintenance history, completed work orders (WOs) for the systems, and reviewed associated system health reports. These reviews were performed to verify that problems were being properly identified, appropriately characterized, and entered into the CAP. Items reviewed generally covered a two-year period of time; however, in accordance with the inspection procedure, a five-year review was performed for selected systems for age-dependent issues.

Control Room walkdowns were also performed to assess the main control room (MCR) deficiency list and to ascertain if deficiencies were entered into the CAP. Operator Workarounds and Operator Burden screenings were reviewed, and the inspectors verified compensatory measures for deficient equipment which were being implemented in the field.

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The inspectors conducted a detailed review of selected NCRs to assess the adequacy of the root-cause and apparent-cause evaluations of the problems identified. The inspectors reviewed these evaluations against the descriptions of the problem described in the NCRs and the guidance in licensee procedure CAP-NGGC-0205, "Condition Evaluation and Corrective Action Process." The inspectors assessed if the licensee had adequately determined the cause(s) of identified problems, and had adequately addressed operability, reportability, common cause, generic concerns, extent-of-condition, and extent-of-cause. The review also assessed if the licensee had appropriately identified and prioritized corrective actions to prevent recurrence.

The inspectors reviewed selected industry operating experience items, including NRC generic communications, to verify that they had been appropriately evaluated for applicability and that issues identified through these reviews had been entered into the CAP.

The inspectors reviewed site trend reports to determine if the licensee effectively trended identified issues and initiated appropriate corrective actions when adverse trends were identified.

The inspectors attended various plant meetings to observe management oversight functions of the corrective action process. These included NCR screening meetings and Management Review Committee (MRC) meetings.

Documents reviewed are listed in the Attachment.

## (2) Assessment

### Identification of Issues

The inspectors determined that the licensee was generally effective in identifying problems and entering them into the CAP and there was a low threshold for entering issues into the CAP. This conclusion was based on a review of the requirements for initiating NCRs as described in licensee procedure CAP-NGGC-0200, "Corrective Action Program," management's expectation that employees were encouraged to initiate NCRs for any reason, and the relatively few number of deficiencies identified by inspectors during plant walkdowns not already entered into the CAP. Trending was generally effective in monitoring equipment performance. Site management was actively involved in the CAP and focused appropriate attention on significant plant issues.

However, the inspectors identified eight minor performance deficiencies for issues that met the identification criteria set forth in the CAP guidance and had not been entered into the CAP. These issues were screened in accordance with Manual Chapter 0612, "Issue Screening," and were determined to be of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy.

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- Inspectors identified that a population of Quick Cause Evaluations (QCE's) performed since August 9, 2010 did not have the required extent of condition (EOC) evaluations performed. This was due to a human error trap in the standard QCE template contained in fleet procedure CAP-NGGC-0205. The template contained confusing instructions that caused some evaluators to document the immediate corrective actions in the section of the evaluation where the EOC should have been documented. Inspectors determined that the licensee had previously identified this issue and initiated a procedure revision request to correct the error (PRR 0452065). However, the issue was never entered into the CAP as a condition adverse to quality and, as a result; no evaluation of the issue was conducted and the inspectors identified seven QCE's which had been completed without the required EOC. Inspectors did not identify any equipment operability concerns associated with the identified QCE's with missing EOC's. The licensee entered this issue into their corrective action program as NCR 479027.
  
- During the system walkdowns, the inspectors found seven minor equipment related issues which had not been previously identified:
  - A stem leak on AFW valve 1AF-143 was identified with water accumulation within the valve bonnet. The license initiated work request (WR) 493239 to address this issue.
  - AFW valves 1AF-40, 1AF-41, and 1AF-42 improperly labeled as Abnormal Operating Procedure (AOP)/Emergency Operating Procedure (EOP) components. The licensee initiated NCR 478773 to address this issue.
  - Valve actuator feedback arm interference was identified for AFW valve 1AF-50. Inspectors evaluated the interference and determined it not to affect the function of the valve. The licensee initiated NCR 477389 and work order (WO) 1958395 to address this issue.
  - Unvented areas of piping connecting the Emergency Service Water (ESW) system to the motor driven AFW pumps were identified as areas vulnerable to potential gas voiding. Inspectors reviewed the licensee's evaluation of the issue and determined that the issue did not represent an operability concern. The licensee initiated NCR 477107 and WO 1957735 was generated to perform ultrasonic testing of the piping.
  - A floor drain strainer was found missing in the vicinity of the B train essential services chill water chiller. Inspectors reviewed the licensee's evaluation of the issue and determined that the missing strainer did not represent an operability concern. The licensee initiated NCR 478287 to address this issue.
  - Inspectors identified a one inch flex conduit serving a safety related ventilation damper which appeared to be exceeding acceptable limits for bend radius. The licensee could not locate design documentation to positively identify the type of conduit and concluded that, based on a safety related exposed conduit design document, the minimum bend radius allowed could be as large as fifteen inches. The minimum bend radius was found to be seven inches and the licensee decided to replace the conduit under WR 495262. Additionally, based on further concerns raised by the inspector

about the extent of the identified condition and the lack of further actions planned by the licensee beyond those of WR 495262; the licensee created WR 495361 to investigate the full extent of condition. The inspectors determined that the issue was not current operability concern. The licensee initiated NCR 495361 to address this issue.

- Inspectors identified a long term degradation concern associated with both essential services chill water system (ESCWS) chillers due to an instrument line that was producing condensation during chiller operation, causing water to drip on the chiller instrumentation panel. The licensee initiated WR 495334 to address this issue.

### Prioritization and Evaluation of Issues

Based on the review of NCRs sampled by the inspection team during the onsite period, the inspectors concluded that problems were generally prioritized and evaluated in accordance with the licensee's CAP procedures as described in the NCR severity level determination guidance in CAP-NGGC-0200, "Corrective Action Program." Each NCR was assigned a significance level at the CAP screening meeting, subsequently reviewed at the MRC, and adequate consideration was given to system or component operability and associated plant risk.

The inspectors determined that station personnel had conducted root cause and apparent cause analyses in compliance with the licensee's CAP procedures and assigned cause determinations were appropriate, considering the significance of the issues being evaluated. A variety of formal causal-analysis techniques were used depending on the type and complexity of the issue consistent with CAP-NGGC-0205.

However, the inspectors identified a NCV of NRC requirements, documented in section 40A2.a.3.1, and two minor performance deficiencies associated with the licensee's prioritization and evaluation of issues. These issues were screened in accordance with Manual Chapter 0612, "Issue Screening," and were determined to be of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy.

- The inspectors identified that an apparent cause determination associated with an inadvertent safety injection (Action Request (AR) 430289) was too narrow in focus and did not consider procedure adherence failures as a contributing cause to the event. After reviewing the apparent cause documentation, it was apparent to inspectors that personnel were potentially operating plant equipment outside of approved procedures contributing to the cause of the inadvertent safety injection event.
- Inspectors identified that an apparent cause determination associated with degradation of ESW traveling screens due to corrosion (NCR 412705) contained an extent of condition evaluation which was too narrow in scope which did not consider

other equipment prone to corrosion issues. The licensee initiated NCR 477656 to address this issue.

### Effectiveness of Corrective Actions

Based on a review of corrective action documents, interviews with licensee staff, and verification of completed corrective actions, the inspectors determined that overall, corrective actions were timely, commensurate with the safety significance of the issues, and effective, in that conditions adverse to quality were corrected. For significant conditions adverse to quality, the corrective actions directly addressed the cause and effectively prevented recurrence in that a review of performance indicators, NCRs, and effectiveness reviews demonstrated that the significant conditions adverse to quality had not recurred. Effectiveness reviews for corrective actions to prevent recurrence (CAPRs) were generally sufficient to ensure corrective actions were properly implemented and were effective. However, as documented in Section 4OA2.a.3.1, the inspectors identified a CAPR which was not effective at preventing recurrence of a significant condition adverse to quality that was not identified during a subsequent effectiveness review.

The inspectors also identified a minor performance deficiency in the area of effectiveness of corrective actions. NCR 345425, initiated to address the use of operating experience on residual heat removal system voiding issues, contained a corrective action to remove inaccurate procedural guidance from the basis document of an abnormal operating procedure (AOP-020-BD). Inspectors determined that the corrective action was completed and the inaccurate procedural guidance was removed in revision 6. However, the inaccurate procedural guidance was inadvertently added back to the procedure in a subsequent revision, revision 7. This issue was screened in accordance with Manual Chapter 0612 and was determined to be of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy. The license initiated NCR 477086 to address this issue.

### (3) Findings

#### .1 Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Quality Control Organization's Acceptance of Electrical Termination Errors

Introduction: An NRC identified Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to take adequate corrective action to preclude repetition of a significant condition adverse to quality associated with the oversight of the Quality Control (QC) organization at Harris. The licensee failed to take adequate corrective actions to address the cause of QC's acceptance of electrical termination errors which occurred during Refueling Outage (RFO) - 15 necessary to preclude related errors which occurred in RFO-16. The license entered this violation into their CAP as NCR 479478.

Description: In the Spring 2009 refueling outage, RFO-15, a number of electrical termination errors were made by craft personnel during the installation of plant modifications. On three occasions, the errors were not identified by QC inspectors during their independent review of the work performed. As a result, a significant adverse condition was identified by the licensee (NCR 341355) and a root cause evaluation was performed. The root cause was determined to be a “lack of oversight and engagement by Nuclear Oversight (NOS) Management with QC resulting in: an inadequate training program, a weak self evaluation culture, isolation from plant organizations, and an over reliance on the craft during inspections.” The licensee identified one corrective action to prevent recurrence (CAPR): “Identify and implement a leadership change model that will foster a cultural change within Quality Control using the INPO ‘Template for Significantly Improving Nuclear Plant Performance’. Items to be addressed include use of, but not limited to the four cornerstones of Self Evaluation, Work Order review/approval, Training, Plant organization interface including meeting attendance (POD and T meetings), and QC Inspections (and related tracking).”

During the subsequent Fall 2010 refueling outage, RFO-16, additional instances occurred where QC’s independent review did not identify electrical termination errors which had been made by craft personnel. On October 12, 2010, during the installation of main steam power operated relief valve cable protection modifications (EC 62343), two separate electrical terminations (a cable and a jumper) were incorrectly installed by craft personnel and subsequently verified by a QC inspector. The following day, while continuing the modification, another electrical termination was incorrectly installed by craft personnel and verified by a different QC inspector. The electrical termination errors were subsequently identified during post maintenance testing and corrected. The licensee entered the wiring errors into their CAP and conducted a Quick Cause Evaluation (NCR 427042). The evaluation revealed that the first inspector failed to stop when unable to properly verify that the electrical terminations were installed in the proper locations. This was attributed primarily to perceived time pressure to complete the inspection due to minimum QC staffing levels. The second inspector failed to stop when unsure due to the complexity of the modification work. This was attributed to a failure to identify, in advance, that the job was complex and required additional training and supervisory oversight. The inspectors concluded that the cause of the RFO-15 events, a lack of oversight and NOS management engagement with QC, contributed to the RFO-16 events, and therefore, the actions taken to address the cause of the RFO-15 events were ineffective at preventing repetition.

The inspectors also noted a lack of conservative decision making related to the licensee’s response to the repeat QC verification errors. The RFO-16 errors occurred in the outage immediately following the CAPR initiation, however, the licensee responded to each error with the lowest level of cause investigation available in the CAP (Quick Cause Evaluation). In January 2011, the licensee conducted an effectiveness review of the CAPR identified to address the cause of the errors which occurred in RFO-15. The three additional errors which occurred in RFO-16 were discussed in the effectiveness review. However, the licensee attributed the additional errors to human performance and concluded that they were not related to the cause of the RFO-15 events. The inspectors disagreed with this assessment. As a result of this non-conservative

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decision, the licensee's effectiveness review incorrectly concluded that the CAPR was effective and no additional actions were taken.

Analysis: The inspectors determined that failure of the licensee to take adequate corrective actions to address the cause of QC's acceptance of electrical termination errors which occurred in RFO-15 necessary to preclude related errors which occurred in RFO-16 was a performance deficiency. The PD was determined to be more than minor in accordance with IMC 0612, Appendix B (Block 9, Figure 2), "Issue Screening," because if left uncorrected, the PD has the potential to lead to a more significant safety concern. Specifically, failure to adequately correct the cause of QC's acceptance of electrical termination errors could result in unidentified wiring errors in safety related equipment associated with the Mitigating Systems cornerstone. In accordance with IMC 0609, Attachment 4, Table 4a, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding is not a design deficiency, did not result in an actual loss of system or single train function, and was not potentially risk significant due to external events. The inspectors determined that this finding was directly related to the cross-cutting aspect of thoroughness of evaluation within the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not thoroughly evaluate the problems leading to QC's acceptance of electrical termination errors which occurred in RFO-15 and develop adequate corrective actions to address the cause, and as a result, corrective actions did not preclude repetition of similar QC errors in RFO-16. (P.1(c))

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Actions, states in part, for significant conditions adverse to quality, measures shall be established to assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to the above, the licensee failed to take adequate corrective action to preclude repetition of the QC organization's acceptance of electrical termination errors, a significant condition adverse to quality, after the license became aware of this condition in June 2009. This condition was identified in June 2009 following RFO-15, however corrective actions did not prevent recurrence of related electrical termination verification errors which occurred in October 2010 during RFO-16. Because the licensee entered the issue into their CAP as NCR 479478 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 05000400/2011009-01: Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Quality Control Organization's Acceptance of Electrical Termination Errors.

b. Assessment of the Use of Operating Experience (OE)

(1) Inspection Scope

The inspectors examined licensee programs for reviewing industry operating experience, reviewed licensee procedure CAP-NGGC-0202, "Operating Experience and Construction Experience Program," and reviewed the licensee's operating experience

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database to assess the effectiveness of how external and internal operating experience data was handled at the plant. In addition, the inspectors selected operating experience documents (e.g., NRC generic communications, 10 CFR Part 21 reports, licensee event reports, vendor notifications, and plant internal operating experience items, etc.), which had been issued since September 2009 to verify whether the licensee had appropriately evaluated each notification for applicability to the Harris plant, and whether issues identified through these reviews were entered into the CAP. Procedure CAP-NGGC-0202, "Operating Experience and Construction Experience Program," was reviewed to verify that the requirements delineated in the program were being implemented at the station. Documents reviewed are listed in the Attachment.

(2) Assessment

Based on a review of documentation related to the review of operating experience issues, the inspectors determined that the licensee was generally effective in screening operating experience for applicability to the plant. Industry OE was evaluated by the plant OE Coordinator and relevant information was then forwarded to the applicable department for further action or informational purposes. OE issues requiring action were entered into the CAP for tracking and closure. In addition, operating experience was included in all root cause evaluations in accordance with licensee procedure CAP-NGGC-205.

However, inspectors identified a minor performance deficiency associated with the licensee's adherence to procedural guidance for the use of OE. Inspectors identified an apparent cause associated with corrosion of ESW travelling screens (NCR 412705) which documented external OE related to the corrosion issue. However, the OE evaluation did not make a conclusion as to whether the site appropriately responded to the OE as required by procedure. This issue was screened in accordance with Manual Chapter 0612 and was determined to be of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee initiated NCR 479270 to address this issue

(3) Findings

No findings were identified.

c. Assessment of Self-Assessments and Audits

(1) Inspection Scope

The inspectors reviewed audit reports and self-assessment reports, including those which focused on problem identification and resolution, to assess the thoroughness and self-criticism of the licensee's audits and self assessments, and to verify that problems identified through those activities were appropriately prioritized and entered into the CAP for resolution in accordance with licensee procedure CAP-NGGC-0201, "Self-Assessment/Benchmark Programs".

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(2) Assessment

The inspectors determined that the scopes of assessments and audits were adequate. Self-assessments were generally detailed and critical, as evidenced by findings consistent with the inspector's independent review. The inspectors verified that NCRs were created to document all deficiencies resulting from the self-assessments, and verified that actions had been completed consistent with those recommendations. Generally, the licensee performed evaluations that were technically accurate. Site trend reports were thorough and a low threshold was established for evaluation of potential trends, as evidenced by the NCRs reviewed that were initiated as a result of adverse trends.

The inspectors identified a minor performance deficiency associated with the licensee's self-assessment program. The inspectors review revealed that some self-assessments were cancelled and not performed without documented justification as required by self-assessment procedural guidance. This issue was screened in accordance with Manual Chapter 0612 and was determined to be of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee initiated NCR 2011101729 to address this issue.

(3) Findings

No findings were identified.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The inspectors randomly interviewed 17 on-site personnel regarding their knowledge of the corrective action program at Harris and their willingness to write NCRs or raise safety concerns. During technical discussions with members of the plant staff, the inspectors conducted interviews to develop a general perspective of the safety-conscious work environment at the site. The interviews were also conducted to determine if any conditions existed that would cause employees to be reluctant to raise safety concerns. The inspectors reviewed the licensee's Employee Concerns Program (ECP) and interviewed the ECP manager. Additionally, the inspectors reviewed a sample of ECP issues to verify that concerns were being properly reviewed and identified deficiencies were being resolved and entered into the CAP when appropriate.

(2) Assessment

Based on the interviews conducted and the NCRs reviewed, the inspectors determined that licensee management emphasized the need for all employees to identify and report problems using the appropriate methods established within the administrative programs, including the CAP and ECP. These methods were readily accessible to all employees. Based on discussions conducted with a sample of plant employees from various departments, the inspectors determined that employees felt free to raise issues, and that

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management encouraged employees to place issues into the CAP for resolution. The inspectors did not identify any reluctance on the part of the licensee staff to report safety concerns. However, inspectors did identify a potential vulnerability associated with the lack of CAP procedural guidance on the proper handling of potential safety conscious work environment (SCWE) issues identified during the course of causal investigations. Inspectors identified that a lower level apparent cause investigation documented statements made by two site personnel which appeared to be indicative of a potential SCWE issue. The inspectors determined that no corrective actions had been taken by the licensee to confirm the existence of the potential SCWE issue. As a result, inspectors interviewed additional site staff from the potentially affected department and concluded that the potential SCWE issue documented in the investigation was not currently present based on the personnel interviewed.

(3) Findings

No findings were identified.

4OA6 Meetings, Including Exit

On July 29, 2011, the inspectors presented the inspection results to Mr. Jefferson and other members of the site staff. The inspectors confirmed that all proprietary information examined during the inspection had been returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

### Licensee personnel:

S. Bartrom, QA inspector  
D. Berens, ESCW System Engineer  
N. Bertrand, Self Assessment/OE Coordinator  
J. Campbell, Lead Nuclear Security Specialist  
J. Caves, Licensing Engineer  
D. Corlett, Licensing Supervisor  
J. Doorhy, Licensing Specialist  
R. Downey, Maintenance Rule Engineer  
C. Dyess, AFW System Engineer  
B. Jefferson, Site Vice President  
T. Koschmeder, Lead Engineer  
P. Luka, ESW System Engineer  
M. Parker, Chemistry  
M. Robinson, Radiation Protection/HP  
J. Succi, Senior Nuclear Procedure Writer  
H. Szews, CAP Owner  
T. Wagoner, CVCS/HHSI System Engineer

### NRC personnel:

J. Austin, Senior Resident Inspector  
R. Musser, Chief, Branch 4, Division of Reactor Projects

## LIST OF REPORT ITEMS

### Opened and Closed

05000400/2011009-01	NCV	Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with the Quality Control Organization's Acceptance of Electrical Termination Errors. (40A2.a.3.1)
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### Closed

None

### Discussed

None

## LIST OF DOCUMENTS REVIEWED

### Procedures

ADM-NGGC-0101, Maintenance Rule Program, Revision 21  
 ADM-NGGC-0104, Work Implementation and Completion, Revision 40  
 ADM-NGGC-0104, Work Management Process, Revision 35  
 ADM-NGGC-0107, Equipment Reliability Process Guideline, Revision 9  
 ADM-NGGC-0116, Nuclear Planning, Revision 4  
 ADM-NGGC-0203, Preventive Maintenance and Surveillance Testing Administration, Revision 16  
 AOP-020, Loss of RCS Inventory or Residual Heat Removal While Shutdown, Revision 34  
 AOP-020-BD, Loss of RCS Inventory or Residual Heat Removal While Shutdown, Revision 8 & 9  
 AP-002, Plant Conduct of Operations, Revision 52 & 53  
 CAP-NGGC-0200, Condition Identification and Screening Process, Revision 32 & 33  
 CAP-NGGC-0201, Self-Assessment/Benchmarking Process, Revision 16  
 CAP-NGGC-0202, Operating Experience and Construction Experience Program, Revision 19  
 CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, Revision 8 through 12  
 DBD-114, Auxiliary Feedwater System, Revision 12  
 EGR-NGCC-0010, System & Component Trending program and System Notebooks, Revision 16  
 HUM-NGGC-0001, Human Performance Program, Revision 8  
 MMM-015, Status Control of Leads, Jumpers, and Connectors, Revision 1  
 MNT-NGGC-0010, Installation and Use of Teledyne / Quiklook Equipment for MOV Diagnostic Testing, Revision 1  
 MST-I0073, Train B 18-Month Manual Reactor Trip, Solid State Protection System Actuation Logic & Master Relay Test, Revision 33  
 OMM-022, Operator Work-Around Program, Revision 12  
 OMP-003, Outage Shutdown Risk Management, Revision 34  
 OP-111, Residual Heat Removal System, Revision, 53  
 OP-116.01, Fuel Pool Purification System, Revision 26  
 OP-148, Essential Services Chilled Water System, Revision 52  
 OPS-NGGC-1000, Fleet Conduct Of Operations, Revision 2 & 3  
 OST-1118, Containment spray operability train a quarterly interval modes 1-4, Revision 30  
 OST-1215, Emergency Service Water System Operability Train B Quarterly Interval Modes 1-2-3-4-5-6-Defueled, Revision 55 through 57  
 OST-1801 Attachment 3, 1A-SA CSIP Performance Data, Revision 39  
 OST-1823, 1A-SA Emergency Diesel Generator Operability Test, Revision 42  
 OST-1824, 1B-SB Emergency Diesel Generator Operability Test, Revision 48  
 OST-1825, Safety Injection: ESF Response Time, Train A, Revision 35  
 OST-1826, Safety Injection: ESF Response Time, Train B, Revision 36  
 PLP-114 Attachment 4, Area Temperature Monitoring, Revision 21  
 PLP-400, Post Maintenance Testing, Revision 52  
 REG-NGGC-0010, 10 CFR 50.59 and Selected Regulatory Reviews, Revision 15

### Nuclear Condition Reports (NCRs)

112525	245320	279437	314739
203119	248518	296180	322952
230150	262037	314483	333155

Attachment

334729	382985	417812	432567
341355	383355	417911	432568
345425	383569	418025	432635
350928	384881	418085	433768
351623	386118	418097	435212
352266	386969	418254	436266
355297	387453	418618	436641
355299	389941	420094	438844
355313	390077	422180	439483
356943	395596	424668	439862
359020	403298	424670	440419
359519	406095	425910	441010
362130	408114	426334	441549
362465	409787	426570	441750
364662	410965	426707	443436
364756	412072	426906	445119
365286	412617	426920	445302
366174	412705	427043	461780
368166	413244	427053	463893
369274	413705	427180	463897
375184	413896	427371	463901
375763	415546	427831	464270
376006	415551	427833	465520
376018	415575	428036	467551
376447	416105	428865	471009
376709	416323	430289	472616
376824	416512	430301	475953
378439	416841	430332	476761
380726	416868	430630	478572
381672	417022	431732	479270
382312	417179	431755	483838
382975	417543	431888	

Work Requests/Work Orders

1130497	1640560	1826756	1859523
1304313	1692501	1836198	1896446
1312555	1793555	1843067	1917870
1640560	1821256	1849678	2063532

Self-Assessments

314739, 2009 self assessment of maintenance productivity (EPRI)  
 376006, Operations human performance  
 376018, Site on-line dose self assessment  
 376263, Formal self assessment of the in-service inspection programs  
 378439, Effectiveness of HU excellence plans  
 380726, Quick hit self assessment of NCRs rejected with no documentation  
 444674, Pre-PI&R readiness assessment

Other Documents

CAR 2166-B-060, Miscellaneous Electrical Details and Notes, Revision 12

CM-M0019 Attachment 1, Pump Assembly, Revision 29

Design Basis Service Water System Travelling Screen and Screen Wash System DBD-128, Revision 19

Drawing 6-B-401 2259, 'B' ESW Header Back-Up to TDAFW Pump, Supply VA 3SW-B73SB-1

Drawing#CAR-2165 G-206, Emergency Service Water & Cooling Tower Make-Up Intake Structure Piping Plan B Sections-SH 2-Unit 1, Revision 13

Drawing#CAR-2165 G-209, Emergency Service Water Intake Screening Structure Piping, Unit 1, Revision 16

Drawing#CAR-2165 G-210S02 Yard Piping Plans Sheet 3 Unit 1, Revision 10

Drawing#CAR-2165 G-211, Yard Piping Plans Sheet 1 Unit 1, Revision 20

Drawing#CAR-2165 G-219, Yard Piping Partial Plans & Sections-SH 6-Unit 1, Revision 14

Drawing#CPL-2165 S-0147, Simplified Flow Diagram Circulating & Service Water Systems Unit 1, Revision 50

Ebasco Services Incorporated Cable and Raceway System Report D15, Shearon Harris Conduit Installation List, Revision 2

EC 77036R4

ESR 00-00137, CSIP Room Temperature Alarm Uncertainty Evaluation, Revision 0

HNP-F/PSA-0018, HNP Updated maintenance Rule Performance Criteria, Revision 1

Maintenance Rule Expert Panel Meeting minutes, No. 08-06, July 11, 2008

Maintenance Rule Expert Panel Meeting minutes, No. 08-07, July 22, 2008

Maintenance Rule Expert Panel Meeting minutes, No. 10-01, January 14, 2010

Maintenance Rule Expert Panel Meeting minutes, No. 10-06, March 4, 2010

Maintenance Rule Expert Panel Meeting minutes, No. 10-07, March 18, 2010

Plant Harris System Health Report - Service Water System (Period Q1-2011)