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

July 29, 2005

Carolina Power and Light Company
ATTN: Mr. James Scarola
Vice President - Harris Plant
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 05000400/2005003

Dear Mr. Scarola:

On June 30, 2005, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris reactor facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 13, 2005, with you and other members of your staff.

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

Based on the results of this inspection, one self-revealing finding of very low safety significance (Green) was identified. This finding was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this finding as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you contest this non-cited violation, you should provide a response 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, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC 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) components of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Paul E. Fredrickson, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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

Enclosure: NRC Inspection Report 05000400/2005003
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-400
License No:	NPF-63
Report No:	05000400/2005003
Licensee:	Carolina Power and Light Company
Facility:	Shearon Harris Nuclear Power Plant, Unit 1
Location:	5413 Shearon Harris Road New Hill, NC 27562
Dates:	April 1, 2005 - June 30, 2005
Inspectors:	R. Musser, Senior Resident Inspector P. O'Bryan, Resident Inspector R. Aiello, Senior Operations Engineer, (Section 4OA5) R. Baldwin Senior Operations Engineer (Sections 1EP1, 4OA1) J. Austin, Resident Inspector, Brunswick, (Sections 1R01, 4OA2, 4OA3) J. Kreh, Emergency Preparedness Inspector, (Sections 1EP1, 4OA1) G. MacDonald, Senior Project Engineer, (Sections 1R04 and 1R19) L. Miller, Senior Emergency Preparedness Inspector, (Sections 1EP1,1EP4) S. Rose, Senior Operations Engineer, (Section 4OA5) M. Scott, Sr. Reactor Inspector, (Section 1R07) R. Taylor, Reactor Inspector, (Section 1R07) G. Wilson, Resident Inspector, North Anna, (Sections 1R16, 1R22, 1R23)
Approved by:	P. Fredrickson, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000400/2005-003; 04/01/2005 - 06/30/2005; Shearon Harris Nuclear Power Plant, Unit 1; Event Follow-up

The report covered a three-month period of inspection by resident inspectors, a senior project engineer, and an announced inspection by regional reactor inspectors. One green non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). 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, Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green. A self-revealing non-cited violation (NCV) of TS 6.8.1, which requires written procedures to be implemented for plant operations, was identified for failure to properly implement an essential services chilled water (ESCW) system procedure. A control room operator using the incorrect section of an ESCW procedure, cross-connected the two trains of the system. This led to depressurization of the running train, pressurization of the standby train, and lifting of a relief valve in the standby train resulting in volume loss. Failure of the relief valve to reseat led to additional water volume loss and depressurization of the standby train.

The finding is greater than minor because if left uncorrected it would become a more significant safety concern due to the loss of water from the ESCW system. The finding is associated with the configuration control attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding is considered to have very low safety significance (Green) because the safety functions of the ESCW trains were not lost at the same time and the safety function of neither train was lost for greater than the allowed technical specification outage time. The finding was related to the cross-cutting area of human performance because the operator used the incorrect section of the plant operating procedure resulting in the depressurization of one train of ESCW (Section 4OA3).

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period at rated thermal power, and operated at full power until May 1, 2005, when the reactor was manually tripped as a result of a sheared shaft on the A condensate pump motor. The unit was restarted on May 2, 2005, and reached 50 percent power on May 3, 2005, while repairs were being performed on the A condensate pump. The unit was returned to rated power on May 8, 2005 and operated at rated power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

After the licensee completed preparations for seasonal high temperatures, the inspectors evaluated implementation of adverse weather preparation procedures. Specifically, on June 7, 2005, the inspectors reviewed compensatory measures for the emergency service water system (ESWS), the emergency diesel generator (EDG) electrical cabinets, and the component cooling water system (1 preparation, 3 systems). These systems were selected because their safety related functions could be affected by adverse weather. The inspectors reviewed the Final Safety Analysis Report (FSAR) and the documents listed in the Attachment. The inspectors also observed plant conditions and evaluated those conditions using criteria documented in Procedure AP-301, Adverse Weather.

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

- AR #156327, Actions to resolve deficiencies and component evaluations consistent with the requirements of PLP-620, “Service Water Program” are not being completed in a timely manner
- AR #151897, AP-301 Hot weather program tracking for 2005
- AR #154605, High service water differential pressure alarm, on “B” component cooling water heat exchanger
- EC 59332 EDG Generator Control Panel High Temp Alarm (C-2)

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns:

The inspectors performed the following three partial system walkdowns while the indicated structures, systems and components (SSCs) were out-of-service (OOS) for maintenance and testing:

- B EDG with A EDG OOS on April 27, 2005.
- A auxiliary feedwater with B auxiliary feedwater OOS on May 11, 2005.
- A EDG with B EDG OOS on June 8, 2005.

To evaluate the operability of the selected trains or systems under these conditions, the inspectors reviewed valve and power alignments by comparing observed positions of valves, switches, and electrical power breakers to the procedures and drawings listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

For the 19 areas identified below, the inspectors reviewed the control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures, to verify that those items were consistent with FSAR Section 9.5.1, Fire Protection System, and FSAR Appendix 9.5.A, Fire Hazards Analysis. The inspectors walked down accessible portions of each area and reviewed results from related surveillance tests, to verify that conditions in these areas were consistent with descriptions of the applicable FSAR sections. Documents reviewed are listed in the Attachment.

- 261' level of the reactor auxiliary building including area 1-A-4-COMB, and the north side passageways including areas 1-A-4-COME and 1-A-4-COMI (3 areas).
- 236' level of the reactor auxiliary building including areas 1-A-3-PB and 1-A-3-TA (2 areas).
- 305' and 324' levels of the reactor auxiliary building including areas 12-A-6-HV7, 12-A-6-CHF1, and 12-A-6-CHF2 (3 areas).
- 190' and 216' levels of the reactor auxiliary building including areas 1-A-1-PA, 1-A-1-PB and 1-A-2-MP (3 areas).
- 261' level of the reactor auxiliary building including areas 1-A-4-COR and 1-A-4-CHLR (2 areas).

- The EDG building including areas 1-D-1-DGB-RM, 1-D-3-DGB-RM,1-D-DTB, 1-D-1-DGB-ASU, 1-D-1-DGB-ER, and 1-D-3-DGB-HVR (6 areas).

Also, to evaluate the readiness of the licensee's personnel to prevent and fight fires, the inspectors observed fire brigade performance during a fire drill in the unit 2 EDG equipment room on May 25, 2005.

The inspectors reviewed AR #158847, "Improper Transient Combustible Material Storage" to verify that the licensee identified and implemented appropriate corrective actions.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flooding

The inspectors walked down the reactor auxiliary building, elevations 236', 216', and 190', containing risk-significant SSCs which are below flood levels or otherwise susceptible to flooding from postulated pipe breaks, to verify that the area configuration, features, and equipment functions were consistent with the descriptions and assumptions used in FSAR Section 3.6A.6, Flooding Analysis, and in the supporting basis documents listed in the Attachment. The inspectors reviewed the operator actions credited in the analysis, to verify that the desired results could be achieved using the plant procedures listed in the Attachment.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

Biennial Inspection

a. Inspection Scope

The inspectors selected 2 types of risk important heat exchangers (HX) and critical systems' components to inspect. Items evaluated were: charging/safety injection pump (CSIP) motor coolers and EDG jacket water HXs. The inspectors also reviewed the condition and test data of the emergency service water (ESW) pump; the heat sink retaining dam report; risk-significant valve stroke times, corrective maintenance problem reviews; and the physical condition of the service water intake. The inspectors also walked down the ESW intake structure.

During this period, the inspectors reviewed to verify that:

- Selected heat exchanger test methodology was consistent with accepted industry standards (Electric Power Research Institute Service Water Heat Exchanger Testing Guidelines, TR-107397) or equivalent (NRC Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment)
- Commitments test conditions were appropriately considered
- Test or inspection criteria were appropriate and met
- Test frequency was appropriate
- As-found results were appropriately dispositioned such that the final condition was acceptable; and
- Test results considered test instrument inaccuracies and differences.

The inspectors reviewed: selected risk important valve inservice stroke time data and work order histories; HX inspection procedures and completed inspections; ESW system health reports and associated work plans for the past two years; and site dam reports performed by outside and corporate personnel. These reviews were evaluated against inservice test inspections information, licensing commitments, Technical Specifications (TS), probabilistic risk assessments, the FSAR, and design documents.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

On April 26, 2005 the inspectors observed licensed-operator performance during requalification simulator training for crew D, to verify that operator performance was consistent with expected operator performance, as described in Simulator Examination Scenario DSS-020, Revision 9. This training tested the operators' ability to place the plant in a safe condition following a loss of major plant equipment. The inspectors focused on clarity and formality of communication, the use of procedures, alarm response, control board manipulations, group dynamics and supervisory oversight.

The inspectors observed the post-exercise critique to verify that the licensee had identified deficiencies and discrepancies that occurred during the simulator training.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed AR #158621, "A ESCW Expansion Tank Relief,1CH-10, Failed to Reseat", a degraded SSC/function performance problem, to verify that the licensee's handling of this condition was in accordance with 10CFR50, Appendix B, Criterion XVI, Corrective Action, and 10CFR50.65, Maintenance Rule. Documents reviewed are listed in the Attachment.

The inspectors focused on the following attributes:

- Appropriate work practices,
- Identifying and addressing common cause failures,
- Scoping in accordance with 10 CFR 50.65(b),
- Characterizing reliability issues (performance),
- Charging unavailability (performance),
- Trending key parameters (condition monitoring),
- 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification, and
- Appropriateness of performance criteria for SSCs/functions classified (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified (a)(1).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the risk assessments and the risk management actions for the plant configurations associated with the three activities listed below. The inspectors verified that the licensee performed adequate risk assessments, and implemented appropriate risk management actions when required by 10CFR50.65(a)(4). For emergent work, the inspectors also verified that any increase in risk was promptly assessed, and that appropriate risk management actions were promptly implemented.

- Maintenance on the A EDG with the 1A unit auxiliary transformer fault pressure relay OOS on April 26, 2005.
- Increase in the risk of a loss of off-site power due to the Fort Bragg feeder breakers open during the work week of May 9, 2005.

- Replacement of the degraded bus relay in the 1B-SB 6.9 kV bus while the Fort Bragg feeder breakers were open on May 18, 2005.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Evolutions and Events

a. Inspection Scope

Following the reactor trip which occurred on May 1, 2005, the inspectors reviewed operator logs, plant computer data, and other plant records, to determine what occurred and how the operators responded, and to verify that the response was in accordance with the associated procedures and training.

The inspectors reviewed AR #157735, “Manual Reactor Trip Per AOP-010" to verify that the licensee identified and implemented appropriate corrective actions:

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed six operability determinations addressed in the ARs listed below. The inspectors assessed the accuracy of the evaluations, the use and control of any necessary compensatory measures, and compliance with the TS. The inspectors verified that the operability determinations were made as specified by Procedure AP-618, "Operability Determinations." The inspectors compared the justifications made in the determination to the requirements from the TS, FSAR, and associated design-basis documents, to verify that operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred:

- AR #156023, “RC loop B flow (channel 1) tripped/reset”
- AR #160549, “Failure of 1SW-227 during performance of OST-1215"
- AR #160895, “Pinhole leak on stub pipe off of ESW to AH-2"
- AR #160295, “Unexpected indication ‘A’ Hydrogen Analyzer”
- AR #161197, “Leak on emergency service water booster pump piping”
- AR #160723, “Missed flux map TS surveillance”

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed an operator workaround that requires the operators to increase monitoring of the reactor coolant system temperature after a reactor trip due to excessive steam leakage through main steam drains. The review was conducted to verify that the workaround did not affect either the functional capability of the related system in responding to an initiating event, or the operators' ability to implement abnormal or emergency operating procedures.

On June 22, 2005, the inspectors also reviewed the cumulative effects of the operator workarounds to verify that the effects of the workarounds could not increase an initiating event frequency, affect multiple mitigating systems, or affect the ability of operators to respond in a correct and timely manner to plant transients and accidents.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the five post-maintenance tests listed below, the inspectors witnessed the test and/or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety function(s) described in the FSAR and TS. The tests included the following:

- Procedure OST-1013, "1A-SA Emergency Diesel Generator Operability Test Monthly Interval Modes 1 through 6," OST-1085, "1A-SA Diesel Generator Operabillity Test Semiannual Interval Modes 1 through 6" and MPT-M0015, "Emergency Diesel Generator Governor Oil Change" as the post maintenance test for the 'A' EDG outage on April 27.

- Procedure OST-1038, "Sampling, Chemical Addition and Main Steam Drain Systems ISI Valve Test Quarterly Interval Mode 1-4" as the post maintenance test for valve 1SP-16 on May 16.

- Procedure OST-1124, "Train B 6.9 kV Emergency Bus Undervoltage Trip Actuating Device Operational Test and Contact Check Modes 1-6' as post maintenance testing after replacement of degraded voltage relay for the "B" 6.9 kV emergency bus on May 18.

- Procedure OST-1007, "CVCS/SI System Operability Train A Quarterly Interval Modes 1-4" as post maintenance testing after preventative maintenance on valves CS-218 and CS-219 on May 26.

- Procedure OST-1215, “Emergency Service Water System Operability Train B Quarterly Interval” as post maintenance testing after an actuator adjustment of 1SW-227. on June 7.

The inspectors reviewed AR #160549, “Failure of 1SW-227 during performance of OST-1215", to verify that the licensee identified and implemented appropriate corrective actions:

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the seven surveillance tests identified below, the inspectors witnessed testing and/or reviewed test data, to verify that the SSCs involved in these tests satisfied the requirements described in the TS and the FSAR, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

- Procedure MST-I0058, “Reactor Coolant Flow Instrument (F-0424) Calibration on April 12.
- Procedure OST-1086, “1B-SB Diesel Generator Operability Test Semiannual Interval Modes 1-6" on April 13.
- Procedure OST-1122, “Train A 6.9 KV Emergency Bus Undervoltage Trip Actuating Device Operational Test and Contact Check, Modes 1-6" on April 28.
- Operational test of the security EDG per OP-179, “Security Building Emergency Electrical System” on May 31.
- Procedure OST-1411, “Auxiliary Feedwater Pump 1X-SAB and 1AF-68, 1AF-106, and 1AF-87 Forward Flow Test” on June 13.
- *Procedure OST-1007, “CVCS/SI System Operability Train A Quarterly Interval Modes 1-4" on June 28.
- Procedure MST-I0364, “MCR Emergency OAI Radiation Monitor RM-01CZ-3505A1SA Operational Test” on June 23.

*This procedure included inservice testing requirements.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed two temporary modifications: Engineering Change #61316 and a temporary modification implemented by Procedure OWP-SW, Service Water, to verify that the modifications did not affect the safety functions of important safety systems, and to verify that the modifications satisfied the requirements of 10CFR50, Appendix B, Criterion III, Design Control.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluation

a. Inspection Scope

Prior to the onsite inspection activity, an in-office review was conducted of the exercise objectives and scenario submitted to the NRC to verify that the exercise would test major elements of the Emergency Plan as required by 10 CFR 50.47(b)(14). This inspection activity represents one sample on a biennial cycle.

The onsite inspection consisted of the following review and assessment:

- The adequacy of the licensee's performance in the biennial exercise was reviewed and assessed regarding the implementation of the risk-significant planning standards (RSPS) in 10 CFR 50.47 (b) (4), (5), (9), and (10), which are emergency classification, offsite notification, radiological assessment, and protective action recommendations, respectively.

- The overall adequacy of the emergency response facilities with regard to NUREG-0696, "Functional Criteria for Emergency Response Facilities" and Emergency Plan commitments. The facilities assessed were the control room simulator, technical support center (TSC), and emergency operations facility (EOF).

- Other performance areas besides the RSPS, such as the emergency response organization's (ERO) recognition of abnormal plant conditions, command and control, intra- and inter-facility communications, prioritization of mitigation activities, utilization of repair and field monitoring teams, interface with offsite agencies, and the overall implementation of the Emergency Plan and its implementing procedures.

- Past performance issues from NRC inspection reports and FEMA exercise reports to determine effectiveness of corrective actions as demonstrated during this exercise to ensure compliance with 10 CFR 50.47(b)(14).

- The post-exercise critique to evaluate the self-assessment of its ERO performance during the exercise and to ensure compliance with 10 CFR 50 Appendix E.IV.F.2.g

The inspectors also reviewed various documents which are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

a. Inspection Scope

The inspectors review of revisions to the Emergency Plan, implementing procedures and EAL changes was conducted to verify that changes had not decreased the effectiveness of the plan. The inspectors also evaluated the associated 10 CFR 50.54(q) reviews associated with non-administrative emergency plan, implementing procedures and EAL changes. Revisions 47, 48, and 49 covered the period from 07/27/2004 to 03/22/2005.

The applicable planning standard, 10 CFR 50.47(b)(4) and its related 10 CFR 50, Appendix E requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, Regulatory Guide 1.101 were also used as references. This inspection activity represents one sample on an annual basis.

The inspectors also reviewed various documents which are listed in the Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

To verify the accuracy of the PI data for the PIs evaluated below, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Revision 2, were used to verify the basis in reporting for each data element.

Cornerstone: Emergency Preparedness

The inspectors reviewed the procedure for developing data for the Emergency Plan performance indicators, which are: (1) Drill and Exercise Performance; (2) Emergency Response Organization Drill Participation; and (3) Alert and Notification System Reliability. The inspectors examined data reported to the NRC for the period January to December 2004. Procedural guidance for reporting PI information and records used by the licensee to identify potential PI occurrences were also reviewed.

- Drill and Exercise Performance

  The inspectors verified the accuracy of the PI for Drill and Exercise Performance through review of a sample of drill and event records.

- Emergency Response Organization Drill Participation

  The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO.

- Alert and Notification System Reliability

  The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the records of periodic system tests.

The inspectors reviewed various documents which are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Review of ARs

To aid in the identification of repetitive equipment failures or specific human performance issues for followup, the inspectors performed frequent screenings of items entered into the corrective action program (CAP). The review was accomplished by reviewing daily AR reports.

.2 Annual Sample Review

AR 149472

The inspectors performed an in-depth review of AR 149472 to verify that conditions adverse to quality were addressed in a manner commensurate with the safety significance of the issue. This AR identified a condition where the reactor auxiliary building emergency exhaust system was vulnerable to a single failure.

AR 131611

The inspectors performed an in-depth review of AR 13161 to verify that conditions adverse to quality were addressed in a manner commensurate with the safety significance of the issue. This AR identified a high temperature condition in the auxiliary reservoir.

The inspectors reviewed the actions taken to verify that the licensee adequately addressed the following attributes:

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

The inspectors also reviewed this AR to verify licensee compliance with the requirements of the CAP as delineated in Procedure CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B.

Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of inspector CAP item screenings, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six-month period of July through December 2004, although some examples expanded beyond those dates when the scope of the trend warranted. The review also included issues documented outside the normal CAP in system health reports, self assessment reports, and Maintenance Rule assessments. The specific items reviewed are listed in the Attachment. The inspectors compared and contrasted their results with the results contained in the latest semi-annual trend reports.

The inspectors also evaluated trend reports against the requirements of the CAP as specified in Procedure CAP-NGGC-0200, Corrective Action Program.

b. Findings and Observations

There were no findings of significance identified. The inspectors observed that the licensee performed adequate trending reviews. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in the CAP data. The inspectors compared the licensee process results with the results of the inspectors' daily screening and did not identify any discrepancies or potential trends in the CAP data that the licensee had failed to identify.

4OA3 Event Follow-up

.1 (Closed) Licensee Event Report (LER) 05000400/2005-001-00: Reactor Auxiliary Building Emergency Exhaust System Single Failure Vulnerability.

On January 27, 2005 while operating at approximately 100%, the licensee identified a single failure vulnerability for both trains of the reactor auxiliary building emergency exhaust system (RABEES) which is a condition prohibited by TS 3/4.7.7, which requires two independent RABEES be operable in Modes 1 through 4. Specifically, Surveillance Requirement 4.4.4.d.3 requires verification that the system maintains the areas served at a negative pressure of greater than or equal to 1/8 inch water gauge relative to the outside atmosphere. Upon discovery, the licensee declared the A Train RABEES inoperable and entered the issue into the CAP. The inspectors reviewed the corrective actions delineated in the LER and determined that the actions were adequate. The corrective actions were completed within and in accordance with the CAP. No findings of significance were identified. This LER is closed.

.2 Operator Error During Essential Services Chilled Water (ESCW) Train Swap

a. Inspection Scope

The inspectors reviewed an event associated with the ESCW system that occurred on May 6, 2005. The inspectors reviewed plant logs and data, evaluated performance of systems and operators, and confirmed proper classification and reporting of the event. Documents reviewed are listed in the Attachment.

b. Findings

Introduction. A Green self-revealing non-cited violation (NCV) of TS 6.8.1, which requires written procedures to be implemented for plant operations was identified for failure to properly implement an essential services chilled water (ESCW) system procedure. A control room operator using the incorrect section of an ESCW procedure, cross-connected the two trains of the system. This led to the pressurization of the expansion tank of one train, and subsequent loss of ESCW system water volume.

Description. On May 6, 2005, during equipment train swaps, a control room operator was tasked to place A train of the ESCW system in service and place the B train in standby. The operator selected Section 5.1 of Operating Procedure 148 (OP-148) to perform the train swap instead of the correct section (OP-148, Section 8.2). Section 5.1 is used for initial start-up of the ESCW system, and is not for use during train swaps. Section 5.1 of OP-148 directed the operator to open cross-connecting valves between the two trains. With the two trains cross-connected, water from the running train was pumped into the standby train, draining and depressurizing the running train's expansion tank. As the water was transferred into the standby train, it's expansion tank filled up and was pressurized. This caused the standby train expansion tank relief valve to lift and it did not reseat when pressure dropped below it's reset setpoint.

Within two minutes of the loss of pressure in the running train, control room operators closed the cross-connect valves and the running train's expansion tank was automatically refilled and pressurized. The standby train continued to lose water volume through it's stuck-open relief valve and eventually depressurized. The standby train continued to leak until a maintenance mechanic manually cycled the valve. The licensee's investigation revealed foreign material as the probable cause of the relief valves malfunction. During subsequent testing, the relief valve functioned satisfactorily.

Analysis. The finding is greater than minor because if left uncorrected it would become a more significant safety concern due to the loss of water from the ESCW system. The finding is associated with the configuration control attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding is considered to have very low safety significance (Green) because the safety functions of the ESCW trains were not lost at the same time and the safety function of neither train was lost for greater than the allowed technical specification outage time. The inspectors also determined that the cause of this finding is a performance aspect of the human performance because the operator used the incorrect section of the plant operating procedure resulting in the depressurization of one train of ESCW.

Enforcement. TS 6.8.1 requires that procedures be implemented for the activities listed in Appendix A of Regulatory Guide 1.33. Contrary to this requirement, licensee personnel did not properly implement procedural requirements for operating the ESCW system. Specifically, on May 6, 2005 a control room operator used the incorrect section of Operating Procedure OP-148 and caused inadvertent ESCW system water loss and depressurization. Because the finding is of very low safety significance and has been entered into the CAP (AR 158247), this violation is being treated as an NCV, consistent with section VI.A.1 of the NRC Enforcement Policy: NCV 05000400/2005003-01, Operator Error During ESCW Train Swap.

.3 (Closed) Licensee Event Report (LER) 2005-002-00, Manual Reactor Trip Following a Trip of the "B" Condensate Pump Motor.

On May 1, 2005, the reactor was manually tripped from 100% due to a loss of the B feed train. The B feed train was lost due to a shaft shear on the B condensate pump. The loss of the B condensate pump led to the automatic trip of the B condensate booster pump and main feed pump. As directed by plant procedures, operators manually tripped the reactor upon the trip of the main feed pump. The licensee replaced the B condensate motor and determined that the failure was due to an inadequate motor shaft weld repair by a vendor in 2000. The LER was reviewed by the inspectors and no findings of significance were identified. The licensee documented the failed equipment in AR #157735. This LER is closed.

.4 (Closed) Licensee Event Report (LER) 2004-005-00, Unplanned Start of 'A' Emergency Diesel Generator.

On October 18, 2004 the A EDG was inadvertently started due to improper maintenance practices on the 1A-SA 6.9 kV emergency bus. The reactor was shutdown in mode 5 at the time of the event. A detailed description of the event and two unresolved items (URIs) are included in NRC Special Inspection Report 05000400/2004009. The URIs were closed in NRC Inspection Report 05000400/2004006 to a green NCV (#05000400/2004006-03, Failure to Follow the Procedure for Taping Leads Lifted From Time Delay Relay 2-1/1711) and a green finding (#05000400/2004006-04, Unnecessary Increase in Risk of Losing the Decay Heat Removal Key Safety Function). The licensee documented the corrective actions in AR #140449. This LER is closed.

4OA5 Other Activities

.1 Operational Readiness of Offsite Power (Temporary Instruction 2515/163)

The inspectors collected data from calculations, corrective action documents and procedures, and through interviews of station engineering, maintenance, and operations staff, as required by TI 2515/163. Appropriate documentation of the inspection results was provided to headquarters staff for further analysis, as required by the TI. This completes the Region II inspection requirements for this TI for the Harris site.

.2 (Closed) URI 05000400/2005002-01: Pending Resolution of a Potential Disqualifying Condition for a Licensed Operator

During a March 10, 2005, medical records review, the inspectors identified that an operator's record may need to have a "no solo" condition on his operating license to satisfy a potential disqualifying condition due to heart erythema in order to meet the ANSI/ANS 3.4 1983 cardiovascular requirements. The facility licensee was informed that the individual may require an amendment to his license that required him to comply with a "no solo" condition while performing licensed duties. On April 26, 2005, the NRC medical doctor reviewed the operators NRC Form 396 to determine if a license condition

was warranted. The NRC medical doctor determined that no changes or additional medical restrictions were necessary. Therefore, this URI is closed.

4OA6 Meetings, Including Exit

.1 Quarterly Integrated Inspection Report Exit

On July 13, 2005, the resident inspectors presented the inspection results to Mr. Scarola and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection. A re-exit was conducted on July 12, 2005, to discuss the closure of URI 05000400/2005002-01, Pending Resolution of a Potential Disqualifying Condition for a Licensed Operator.

.2 Annual Assessment Meeting Summary

On April 21, 2005, the NRC's Chief of Reactor Projects Branch 4, and Resident staff assigned to the Shearon Harris Nuclear Plant conducted a public meeting with Progress Energy - Carolina Power & Light (CP&L) to discuss the NRC's Reactor Oversight Process (ROP) and the Harris annual assessment of safety performance for the period of January 1, 2004 - December 31, 2004. Attendees included Harris management and site staff, members of the public and local media.

This meeting was open to the public. The NRC's and the licensee’s presentation materials used during the meeting are available from the NRC's document system (ADAMS) as accession numbers ML051100439 and ML052100274, respectivley. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

A. Barginere, Superintendent, Security
J. Briggs, HNP, Superintendent, Environmental and Chemical
D. Corlett, Supervisor - Licensing/Regulatory Programs
F. Diya, Manager - Engineering
R. Duncan, Director - Site Operations
W. Gurganious, Manager - Nuclear Assessment
E. McCartney, Training Manager
G. Miller, Maintenance Manager
T. Morton, Manager - Support Services
T. Natale, Manager -Outage and Scheduling
T. Pilo, Supervisor - Emergency Preparedness
J. Scarola, Vice President Harris Plant
G. Simmons, Superintendent - Radiation Control
E. Wills, Operations Manager
B. Waldrep, General Manager Harris Plant
M. Wallace, Licensing Specialist

NRC personnel

P. Fredrickson, Chief, Reactor Projects Branch 4

Attachment

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000400/2005003-01	NCV	Operator Error During Essential Services Chilled Water (ESCW) Train Swap (Section 4OA3.2)

Closed

05000400/2005-001-00	LER	Reactor Auxiliary Building Emergency Exhaust System Single Failure Vulnerability (Section 4OA3.1)
05000400/2005-002-00	LER	Manual Reactor Trip of the 'B' Condensate Pump Motor (Section 4OA3.3)
05000400/2004-005-00	LER	Unplanned Start of 'A' Emergency Diesel Generator (Section 4OA3.4)
05000400/2005002-01	URI	Pending Resolution of a Potential Disqualifying Condition for a Licensed Operator (Section 4OA5.2).

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

- AP-301, “Seasonal Weather Preparations and Monitoring”
- AP-301 Hot Weather Plan
- EC 59332, “EDG Generator Control Panel High Temperature Alarm”

Section 1R04: Equipment Alignment

Partial System Walkdown

Emergency Diesel Generator system:
- Procedure OP-155, “Diesel Generator Emergency Power System”
- Drawing 2165-S-0633, sheets 1 through 4, “Simplified Flow Diagram Emergency Diesel Generator Systems”

Auxiliary Feedwater system:
- Procedure OP-137, “Auxiliary Feedwater System”
- Drawing 2165-S-0544, “Simplified Flow Diagram Feedwater Systems”

Section 1R05: Fire Protection

- FPQ0001H, “Fire Drill Planning Guide and Critique Evaluation Form”

Section 1R06: Flood Protection Measures

FSAR Sections

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

Calculations:

- Calculation #PRA-F/E-4, “RAB Unit 1 Elevation 190' & 216' Flood Analysis”
- Calculation #PRA-F/E-5, “RAB Unit 1Elevation 236 Compartment Flood Analysis”

Procedures:

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

Section 1R07: Heat Sink Performance

Procedures and Completed Procedure (Testing Data)

WO 00491580 1SW-E042 ESW Pump 1-B Discharge Degraded Flow Investigation
WO history on valves 1SW-25, 1SW-26, 1SW-33, 1SW-43, 1SW-39, and 1SW-40 for the past two years
WOs on the CSIP pumps skid cooler inspections such as 00458295, 00277803, 00184583, 00212286 in the past two years
EPT-163, Engineering Periodic Test Procedure, dated 5/4/05 (Typical, for the last two years)
OST-250, Train A ESW Flow Verification/Balance, dated 7/29/04
OST 251, Train B ESW Flow Verification/Balance, dated 10/29/04
OST-1823, 1A SA Emergency Diesel Generator [EDG] Operability Test, dated 10/17/04
OST-1824, 1B SA Emergency Diesel Generator Operability Test, dated 4/26/03
Temperature Rise Data on the EDGS for the past two years
WO history on EDG Jacket Water (JW) inspections with accompanying pictures for the last two cycles
ESW System Health Report through 4/2005

Adverse Condition Reports (AR)

00159957, Unable to measure flow through the "B" CSIP Lube Oil Cooler
00154605-02, High delta pressure alarm during performance of OST-1215 Surveillance
00112525, ESW Pump B-2B Fails OST-1215
00126041, Low Margin on ESW Flow to 1A-SA EDG JW Cooler

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

- WCM-001, "On-Line Maintenance Risk Management"

Section 1R14: Operator Performance During Non-Routine Evolutions and Events

- OMM-004, "Post Trip/Safeguards Actuation Report," completed on May 1, 2005.

Section 1R15: Operability Evaluations

- AP-618, “Operability Determinations”

Section 1R23: Temporary Plant Modifications

- System Description SD-139, “Service Water System”
- Design Basis Document DBD-128, “Service Water System”
- CPL-2165-0547, “Simplified Flow Diagram, Circulating & Service Water Systems”
- CAR 2166 B-401, sheet 2207, “Control Wiring Diagram, Normal Service Water Supply HDR “A” Isol Valve 3SW-B5SA-1"

Section 1EP1: Exercise Evaluation

Plans and Procedures

Shearon Harris Nuclear Power Plant Biennial Emergency Preparedness Exercise Book
PLP-201, Emergency Plan, Revision 49
PEP-110, Emergency Classification and Protective Action Recommendations, Rev. 13
PEP-310, Notifications and Communications, Rev. 18

Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes

PLP-201, Emergency Plan, Revision 47
PLP-201, Emergency Plan, Revision 48
PLP-201, Emergency Plan, Revision 49
Revision Change Package for PLP-201, Emergency Plan, Revision 47
Revision Change Package for PLP-201, Emergency Plan, Revision 48
Revision Change Package for PLP-201, Emergency Plan, Revision 49
PEP-110, Emergency Classification and Protective Action Recommendations, Rev. 13
PEP-240, Activation and Operation of the Technical Support Center, Rev. 8
PEP-310, Notifications and Communications, Rev. 18

Section 4OA1 Performance Indicator (PI) Verification

Procedures

REG-NGGC-0009, NRC Performance Indicators, Rev. 1

Records and Data

Documentation (scenario/time line/event notification forms/critique report) for ERO drill on 06/08/2004

Documentation of DEP Opportunities from Operations Simulator evaluations on 03/02/2004, 03/09/2004, 03/16/2004, 03/23/2004, 09/06/2004, 09/13/2004
Selected training records of drill/exercise participation by ERO personnel for 2004

Miscellaneous

Handbook of Installation, Operation and Maintenance Instructions for Model 1000 or Model 1003, Thunderbolt siren (8400A177-01), Federal Sign and Signal Corporation

Harris Nuclear Plant, Plant Operating Manual, Vol 2, Part 10, Emergency Program Maintenance, EPM-400, Public Notification and Alerting system, Rev. 9

Motorola Fixed Data, I08502, Drawing Rev. 5/20/03
Progress Energy Harris Emergency Warning System, Operator's Manual (Prepared by Jeff Swenson)

Section 4OA2: Identification and Resolution of Problems

Annual Sample Review

- EC 60241, "Resolution of Unanalyzed Single Failure for E-6"
- AR 156327
- EC 58439, "Auxiliary Reservoir Average Temperature"
- OP-163, "Plant Computer"

Semi-Annual Trend Review

- HNP-Site Trend Report CAP Rollup & Trend Analysis, First Quarter, 2005
- HNP Corrective Action Program Trend Report, 3rd and 4th Quarters, 2004 System Health Indicator Panel
- Harris Nuclear Assessment Quarterly Performance Report, March 2005
- CAP-NGGC-0206, "Corrective Action Program Trending and Analysis"

Section 4OA3: Event Follow-up

- OMM-004, "Post Trip/Safeguards Actuation Report," completed on May 1, 2005.
- OMP-003, "Outage Shutdown Risk Management"
- WCM-001, "On-Line Maintenance Risk Management"

Section 4OA5: Other Activities

Operational Readiness of Offsite Power (Temporary Instruction 2515/163)

- AOP-028, “Grid Instability”
- NGGM-IA-0003, “Transmission Interface Agreement for Operation, Maintenance, and Engineering Activities at Nuclear Plants”
- Calculation No. 8S44-P-101, “Station Blackout Coping Analysis Report”
- EOP-EPP-001, “Loss of AC Power to 1A-SA and 1B-SB Buses”
- ADM-NGGC-0006, “Online EOOS Models for Risk Assessment”
- SORMC-CP-11, “Guidelines for Conservative Operation”
- SORMC-GD-23, “Harris Plant Voltage Support & Coordination”
- WCM-001, “On-Line Maintenance Risk Management”

Pending Resolution of a Potential disqualifying Condition for a Licensed Operator

NRC letter dated April 26, 2005, Determination of Medical License Restriction