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

November 2, 2015

Mr. David R. Vineyard
Vice President
Southern Nuclear Operating Company, Inc.
Edwin I. Hatch Nuclear Plant
11028 Hatch Parkway North
Baxley, GA 31513

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000321/2015003 AND 05000366/2015003

Dear Mr. Vineyard:

On September 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Edwin I. Hatch Nuclear Plant Units 1 and 2. On October 27, 2015, the NRC inspectors discussed the results of this inspection with Mr. Richard Spring and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. These findings involved violations of NRC requirements. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance. The NRC is treating these violations as noncited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy. If you contest the violations or significance of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. 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, DC 20555-0001; and the NRC resident inspector at Hatch. If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II; and the NRC resident inspector at Hatch.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, “Public Inspections, Exemptions, Requests for Withholding,” of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC’s Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Shane Sandal, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 50-321, 50-366
License Nos.: DPR-57 and NPF-5

Enclosures: Inspection Report 05000321/2015003, 05000366/2015003
w/Attachment: Supplemental Information

cc: Distribution via Listserv

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REGION II

Docket Nos.:	50-321, 50-366, 72-036
License Nos.:	DPR-57 and NPF-5
Report Nos.:	05000321/2015003 and 05000366/2015003
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Edwin I. Hatch Nuclear Plant
Location:	Baxley, Georgia
Dates:	July 1 – September 30, 2015
Inspectors:	D. Hardage, Senior Resident Inspector D. Retterer, Resident Inspector M. Cain, Senior Resident Inspector (1R05) J. Dymek, Reactor Inspector (4OA3) J. Montgomery, Senior Reactor Inspector (4OA3)
Approved by:	Shane Sandal, Chief Reactor Projects Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000321/2015003; and 05000366/2015003, July 1, 2015, through September 30, 2015; Edwin I. Hatch, Units 1 and 2, Follow-up of Events and Notices of Enforcement Discretion.

The report covered a 3-month period of inspection by resident inspectors and regional inspectors. Two Green violations are documented in this report. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP) dated April 29, 2015. The cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas" dated December 4, 2104. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- Green. The NRC identified a non-cited violation (NCV) of Hatch Operating License Conditions (OLCs) 2.C.(3) and 2.C.(3)(a), for Units 1 and 2 respectively, for the licensee's failure to perform fire barrier penetration seal inspections in accordance with the requirements of Surveillance Requirement 2.1.1.c of Appendix B of the Fire Hazard Analysis (FHA). Specifically, the licensee failed to ensure that fire-rated penetrations and fire-rated barriers separating redundant safe-shutdown trains were adequate to keep a fire from spreading from one fire area to another. To restore compliance the licensee performed a 100 percent inspection of fire-rated penetrations to verify the material condition of the site's rated fire barrier penetrations.

  The licensee's failure to perform fire barrier penetration seal inspections was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the reactor safety Mitigating Systems cornerstone attribute of protection against external factors (i.e. fire), and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Based on the finding being of very low probability, the finding was determined to be of very-low safety significance (Green). The cause of the finding had a cross-cutting aspect in the area of Human Performance, field presence, because plant leadership did not reinforce standards and expectations, and did not ensure that deviations from standards and expectations were corrected promptly (H.2). Specifically, licensee oversight was not properly engaged to ensure that surveillances were performed adequately, and that deviations were addressed appropriately. (Section 4OA3.2)

- Green. A self-revealing, NCV of 10 CFR 50, Appendix B, Criterion V, "Procedures, Instructions, and Drawings," was identified when the licensee failed to provide instructions to ensure alignment of the "1A" plant service water (PSW) pump column in the true vertical position. The failure to align the "1A" PSW pump column resulted high stresses which caused the failure of the "1A" PSW pump. To restore compliance, the licensee replaced the "1A" PSW pump and revised the pump installation procedure to ensure the pump column is aligned in the true vertical position.

Failure to provide instructions to ensure appropriate vertical alignment of the “1A” PSW pump column was a performance deficiency. This performance deficiency was more than minor because it affected the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective in that the misalignment of the pump column resulted in inoperability of the “1A” PSW pump. A regional Senior Reactor Analyst (SRA) performed a detailed risk review of the finding. The SRA calculated the difference between the risk associated with loss of offsite power (LOOP) events with extended recovery times with the “1A” pump available, and without the pump. Because of the low frequency of the seismic event, the finding was determined to be Green. The inspectors determined that this finding did not have an associated cross cutting aspect because this finding was not reflective of current licensee performance. (4AO3.3)

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

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent rated thermal power (RTP). On September 14, 2015, operators reduced power to 18 percent RTP for replacement of the stator cooling water system filter. On September 16, 2015, the unit was returned to 100 percent RTP where it operated for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent rated thermal power (RTP). On August 9, 2015, operators reduced power to 70 percent RTP due the loss of "B" circulating water pump. On August 13, 2015, the unit was returned to 100 percent RTP where it operated for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

Readiness to Cope with External Flooding: The inspectors evaluated the licensee's implementation of flood protection procedures and compensatory measures during impending conditions of flooding or heavy rains. The inspectors reviewed the updated final safety analysis report and related flood analysis documents to identify those areas containing safety related equipment that could be affected by external flooding and their design flood levels. The inspectors walked down flood protection barriers, reviewed procedures for coping with external flooding, and reviewed corrective actions for past flooding events. The inspectors verified that the procedures for coping with flooding could reasonably be used to achieve the desired results. For those areas where operator actions are credited, the inspectors assessed whether the flooding event could limit or preclude the required actions. The inspectors conducted walkdowns of the following plant areas containing risk-significant structures, systems, and components that are below flood levels or otherwise susceptible to flooding. Documents reviewed are listed in the Attachment.

- Unit 1 Intake Area
- Unit 2 Intake Area

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial Walkdown: The inspectors verified that critical portions of the following three systems were correctly aligned by performing partial walkdowns. The inspectors selected systems for assessment because they were a redundant or backup system or train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings.

- Unit 1 'A' train of RHRSW system while 'B' train was out of service for maintenance, July 13, 2015
- Unit 1 'A' train of SBGT system while 'B' train was out of service for maintenance, August 18. 2015
- Unit 1 'A' train of Nitrogen Inerting System system while 'B' train was out of service for maintenance, September 1, 2015

Complete Walkdown: The inspectors verified the alignment of the Unit 1 Core Spray system. The inspectors selected this system for assessment because it is a risk-significant mitigating system. The inspectors determined the correct system lineup by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors reviewed records related to the system outstanding design issues, maintenance work requests, and deficiencies. The inspectors verified that the selected system was correctly aligned by performing a complete walkdown of accessible components. The inspectors reviewed selected corrective action documents, including condition reports and outstanding work orders, to verify the licensee was identifying and resolving equipment alignment discrepancies. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems including maintenance rule reports and system health reports.

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

Quarterly Inspection: The inspectors evaluated the adequacy of selected fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program. The inspectors assessed the following items:

- control of transient combustibles and ignition sources
- fire detection systems
- water-based fire suppression systems
- gaseous fire suppression systems
- manual firefighting equipment and capability

- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's corrective action program

The inspectors toured the following five fire areas to assess material condition and operational status of fire protection equipment.

- Unit 2, CRD pump room, fire zone 2205C
- Unit 2 ASD room A/B, fire zone 2210/2211
- Unit 2 RCIC pump room, fire zone 2203C
- Unit 2, North & South CRD areas, fire zones 2203F/2205F
- Unit 2, HPCI room, fire zone 2205Z

Annual Inspection: The inspectors evaluated the licensee's fire brigade performance during a drill on September 9, 2015 and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance:

- capability of fire brigade members
- leadership ability of the brigade leader
- use of turnout gear and fire-fighting equipment
- team effectiveness
- compliance with site procedures

The inspectors also assessed the ability of control room operators to combat potential fires, including identifying the location of the fire, dispatching the fire brigade, and sounding alarms.

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

a. Inspection Scope

Resident Inspector Quarterly Review of Licensed Operator Requalification The inspectors observed an evaluated simulator scenario administered to an operating crew as part of the annual requalification operating test required by 10 CFR 55.59, "Requalification." The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique

- simulator performance

Resident Inspector Quarterly Review (Licensed Operator Performance): The inspectors observed licensed operator performance in the main control room during unit 2 power ascension following replacement of the "2B" circulating water pump motor and semiannual testing of "1B" emergency diesel generator. The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities
- management and supervision

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the two issues listed below to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"). The inspectors reviewed procedures and records to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. Documents reviewed are listed in the attachment.

- Unit 1, Diesel Fire Pump 2A, fire pump failed to start
- Unit 1 and 2, Secondary Containment Test failure

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the four maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and

licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities. Documents reviewed are listed in the attachment.

- Unit 1, August 5, 2015, RCIC declared inoperable due to1E51-F105 control switch failure.
- Unit 2, August 9-12, 2015, Station Service Battery Charger Replacement and emergent maintenance on "B" circulating water pump motor due winding failure.
- Unit 1, September 8, including routine maintenance on "C" emergency diesel generator and the "B" containment atmosphere dilution system.
- Unit 1, September 12-15, emergent maintenance on "C" plant service water pump due to motor oil leak and emergent downpower and replacement of the stator cooling water inlet filter due to high differential pressure.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

Operability and Functionality Review: The inspectors selected the four operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the attachment.

- Unit 1, HPCI thrust bearing elevated temperature, CR 10094720
- Unit 2, "C" EDG air start solenoid fails open, CR 10099795
- Unit 1 and Unit 2, station service battery door fire/flooding qualifications, CR 10107796
- Unit 1, "C" plant service water pump motor upper oil level barely visible, CR 10121193

Operator Work-Around Review: The inspectors performed a detailed review of the licensee's operator work-around, operator burden, and control room deficiency lists for the station in effect on August 6, 2015 to verify that the licensee identified operator workarounds at an appropriate threshold and entered them in the corrective action program. The inspectors verified that the licensee identified the full extent of issues, performed appropriate evaluations, and planned appropriate corrective actions. The inspectors also reviewed compensatory actions and their cumulative effects on plant operation. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors verified that the plant modification listed below did not affect the safety functions of important safety systems. The inspectors confirmed the modifications did not degrade the design bases, licensing bases, and performance capability of risk significant structures, systems and components. The inspectors also verified modifications performed during plant configurations involving increased risk did not place the plant in an unsafe condition. Additionally, the inspectors evaluated whether system operability and availability, configuration control, post-installation test activities, and changes to documents, such as drawings, procedures, and operator training materials, complied with licensee standards and NRC requirements. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modifications. Documents reviewed are listed in the attachment.

- DCP SNC595830, Unit 2 Division II Station Service Battery Chargers Replacement

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the four maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- SNC688170, Reposition Air Line on "2A" EDG, July 28, 2015
- SNC657720, Replace 2C11H30-43 scram accumulator, August 12, 2015

- SNC448819, Replace Nitrogen Pressure Regulating Valves, September 3, 2015
- SNC424333, 2E11C002D Partial Discharge Test, September 17, 2015

The inspectors evaluated these activities for the following:

- Acceptance criteria were clear and demonstrated operational readiness.
- Effects of testing on the plant were adequately addressed.
- Test instrumentation was appropriate.
- Tests were performed in accordance with approved procedures.
- Equipment was returned to its operational status following testing.
- Test documentation was properly evaluated.

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the four surveillance tests listed below and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met technical specification and licensee procedural requirements. The inspectors evaluated the test activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. Additionally, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with surveillance testing. Documents reviewed are listed in the attachment.

Routine Surveillance Tests
- 34SV-R43-001-2, Diesel Generator 2A Monthly Test
- 52SV-R42-008-0, Battery Charger 1A Capacity Test
- 42SV-T46-003-1, Standby Gas Treatment 1B Filter Test

In-Service Test (IST)
- 34SV-E41-002-2, HPCI Pump Operability

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency preparedness evolution conducted on September 22, 2015. The inspectors observed licensee activities in the simulator to evaluate implementation of the emergency plan, including event classification, notification, and protective action recommendations. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying emergency preparedness weaknesses and verified the identified weaknesses were entered in the corrective action program. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 1 and Unit 2 PIs listed below. The inspectors reviewed plant records compiled between July 2014 and June 2015 to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data. Documents reviewed are listed in the attachment.

Cornerstone: Mitigating Systems

- residual heat removal system
- high pressure injection system
- emergency AC power system

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

The inspectors screened items entered into the licensee's corrective action program in order to identify repetitive equipment failures or specific human performance issues for followup. The inspectors reviewed condition reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Annual Followup of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of condition report 10023130, Secondary Containment Test performance unsatisfactory. The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) LER 05000366/2015-004-00, Safety Relief Valves As Found Settings Resulted in Not Meeting Tech Spec Surveillance Criteria

a. Inspection Scope

The inspectors reviewed this LER for potential performance deficiencies and/or violations of regulatory requirements. Additionally, discussions were held with Operations, Engineering and Licensing staff members to understand the details surrounding this issue. This condition was documented in the licensee's corrective action program as CR 10067922. LER 05000366/2015-004-00 is closed.

b. Findings

The enforcement aspects associated with this LER are discussed in Section 4OA7.

.2 (Closed) Licensee Event Report (LER) 05000321, 366/2014-004-05: Non-Functional Penetrations Compromise Safe Shutdown Paths in Postulated Fire Event

(Closed) LER 05000321, 366/2014-006-04: Unanalyzed Condition due to Non-Functional Fire Barriers Affecting Both Safe Shutdown Paths during a Postulated Fire

(Closed) LER 05000366/2015-003-00: Unanalyzed Condition due to Non-Functional Fire Barrier Affecting Both Safe Shutdown Paths during a Postulated Fire

a. Inspection Scope

On July 6, 2015 and May 29, 2015, the licensee submitted revised LERs documenting the discovery of conditions of non-compliance with the site's fire protection program (FPP). These conditions could prevent operators from achieving and maintaining safe shutdown (SSD) of the plant, in the case of a postulated fire. The inspectors reviewed documents and discussed the events with plant personnel to gain an understanding of the events. The inspectors assessed the licensee's compensatory measures and corrective actions to determine if they were adequate. These LERs are closed.

b. Findings

Introduction: The NRC identified a Green non-cited violation (NCV) of Hatch OLCs 2.C.(3) and 2.C.(3)(a), for Units 1 and 2 respectively, for the licensee's failure to perform fire barrier penetration seal inspections in accordance with the requirements of Surveillance Requirement 2.1.1.c of Appendix B of the licensee's FHA.

Description: In July 2013, the licensee performed required penetration surveillances as directed by surveillance procedure 42SV-FPX-019-1(2). Several penetration seals were identified as potentially non-conforming due to the presence of grout instead of the seal material shown on the penetration design drawing. The licensee entered these issues into the CAP as CRs 705430, 725789 and 725792. After discovery of this condition, the site Fire Protection Engineer was unable to locate any site specific test data to support the use of grout in hollow-block wall penetrations. Initially, the licensee performed an evaluation that determined that the grout-filled penetration seals were adequate; however, this evaluation was subsequently determined to be inadequate. The licensee commissioned an industry test laboratory to determine the resistance rating of these grout-filled penetration seal configurations. Based on the results of these tests, the licensee determined that the installed grout-filled penetrations would meet the fire resistance rating of standard fire penetration seal tests. However, during the research to find test data for grout-filled penetrations, the licensee discovered that the required number of penetration seals were not being tested to meet the surveillance requirements contained in the site's fire protection program.

Fire Protection Equipment Surveillance Requirement 2.1.1(c) stated, in part, that penetration sealing devices shall be verified operable at least once per 24 months by performing a visual inspection of at least 10% of each type of sealed penetration. Samples shall be selected such that each penetration seal will be inspected at least once per 15 years. Due to organizational changes and changes to the database that

tracked penetration seal inspections, the licensee failed to maintain the performance order of the penetration seal inspections. As a result, for some penetrations, the time between inspections exceeded the 15 year time inspection period. In addition to the sample data error, several test records for the penetration seal surveillances could not be located. Based on these two issues, the licensee declared all fire-rated penetrations throughout both units as non-conforming and commenced a 100% inspection to determine the material condition of the site's rated fire barrier penetrations. These issues were entered into the CAP as CR 813679. As a result of these inspections, the licensee identified several fire-rated barriers and fire-rated penetrations that did not meet the requirements of the site's surveillance procedures. As non-conforming barriers and penetrations were discovered, the licensee submitted/updated LERs to the NRC, and implemented compensatory measures until the barriers or penetrations could be repaired.

Subsequently, after being challenged by both NRC inspectors and licensee management, the licensee determined that several inspections were inadequate to determine the material condition of the penetration seals. The licensee entered this issue into the CAP as CRs 10024952, 10000607, and 10000590. In response, the licensee assigned a full-time dedicated supervisor to the penetration seal inspection effort and revised surveillance procedures to give more specific guidance and acceptance criteria.

Analysis: The licensee's failure to perform fire barrier penetration seal inspections was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of protection against external factors (i.e. fire), and adversely affected the cornerstone objective deficiency in that the penetration seals could adversely impact confinement of a fire. The finding was screened in accordance with IMC 0609, "Significance Determination Process (SDP)," Attachment 4, "Initial Characterization of Findings." An IMC 0609 Appendix F, "Fire Protection Significance Determination Process," review was required because the finding affected the ability to confine a fire. Using the "Fire Protection SDP Phase 1 Screening," the finding was assigned a category of "Fire Confinement." In accordance with IMC 0609, Appendix F, Attachment 2, the finding screened as high degradation due to some of the discovered degraded fire penetrations having less than 2 inches of sealing material. The team used step 1.4 "Qualitative Screening Question Set for Seven Individual Categories," task 1.4.3 "Fire Confinement" of IMC 0609, Appendix F, Attachment 1 to determine the finding to be of very low safety significance (i.e., Green) because the fire penetrations and barriers, in their degraded condition, would provide a 1-hour or greater fire endurance rating (Task 1.4.3, B Question).

The cause of the finding had a cross-cutting aspect in the area of Human Performance, field presence, because plant leadership did not ensure that surveillances were performed adequately and that deviations were addressed appropriately. (H.2)

Enforcement: Hatch Renewed OLCs 2.C.(3) and 2.C.(3)(a), for Units 1 and 2 respectively, states, in part, that Southern Nuclear shall implement and maintain in effect all provisions of the fire protection program, which is referenced in the Updated Final

Safety Analysis Report for the facility, as contained in the updated Fire Hazards Analysis and Fire Protection Program for the Edwin I. Hatch Nuclear Plant, Units 1 and 2, which was originally submitted by letter dated July 22, 1986. Surveillance Requirement 2.1.1.c of Appendix B of the FHA states that penetration sealing devices shall be verified operable at least once per 24 months by performing a visual inspection of at least 10% of each type of sealed penetration. Samples shall be selected such that each penetration seal will be inspected at least once per 15 years. Contrary to the above, since 2004, the licensee failed to perform fire barrier penetration seal inspections in accordance with the requirements of Surveillance Requirement 2.1.1.c of Appendix B of the FHA. The licensee failed to ensure that fire-rated penetrations and fire-rated barriers separating redundant safe-shutdown trains were adequate to keep a fire from spreading from one fire area to another. The licensee failed to perform the surveillance requirement within the specified time interval, and failed to establish the required compensatory measures for having not performed the required surveillance. The licensee performed a 100% inspection to determine the material condition of each rated fire barrier penetrations to restore compliance.

Because this finding is of very low safety significance and because was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000321, 366/2015003-01, “Failure to Perform Adequate Surveillance on Fire Barriers and Penetration Seals”)

.3 (Closed) LER 05000321/2015-002-00, 1A Plant Service Water Pump Misalignment Results in a Condition Prohibited by Tech Specs

b. Inspection Scope

The inspectors reviewed this LER for potential performance deficiencies and/or violations of regulatory requirements. Additionally, discussions were held with Operations, Engineering and Licensing staff members to understand the details surrounding this issue. This condition was documented in the licensee’s corrective action program as CR 10029790.

b. Findings

Introduction: A Green, self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, “Procedures, Instructions, and Drawings,” was identified when the licensee failed to provide instructions to ensure alignment of the “1A” plant service water (PSW) pump column in the true vertical position. The failure to align the “1A” PSW pump column resulted high stresses which caused the failure of the “1A” PSW pump.

Description: On January 20, 2015, the licensee observed that the “1A” PSW pump motor was visually shaking. Vibration readings were taken at the upper and lower motor bearing areas which exceeded the in-service test action level. The “1A” PSW pump was declared inoperable and secured. The “1A” PSW pump was a vertical turbine pump that was designed to be installed with the pump shaft vertically straight. The pump column was installed approximately fifty feet into the intake well and was surrounded by two

seismic restraints to minimize the column movement during a seismic event but are not designed to support the pump column during normal operation. During “1A” PSW pump installation following seismic restraint replacement in 2010, the seismic restraints interfered with the vertical installation of the pump column. No evaluation was performed to assess this condition nor was any guidance provided to ensure the pump shaft was vertically straight. Measurement taken in 2015 revealed the upper seismic restraint had a 0.25 inch offset to the east while the lower seismic restraint had a 0.75 inch offset to the west and a 0.625 inch offset that extended from the wall. In this configuration, considerable loads were applied to both the upper and lower restraints and the pump shaft. The seismic restraints masked this condition and vibrations on the pump motor were normal until the seismic restraints failed from fatigue. Once the restraint straps failed, the pump column was free to move and exhibited excessive motor vibration due to the uneven bearing wear that had developed during operation between 2010 and 2015. Based on the elevated vibration and the amount of wear observed on the pump shaft during disassembly, the licensee concluded that pump would not have been able to meet rated flow and pressure after 24 hours. Thus had a design bases seismic event occurred prior to January 20, 2015, such that the weakened seismic restraints on the pump failed, the unrestrained pump would not have been able to meet its 30-day mission time.

Analysis: Failure to provide instructions to ensure proper vertical alignment the “1A” PSW pump column was a performance deficiency. This performance deficiency was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective in that the misalignment of the pump column resulted in the “1A” PSW pump not being able to fulfill its safety function during a seismic event. The inspectors screened this finding using IMC 0609, Appendix A, “The Significant Determination Process (SDP) For Findings At-Power”, dated June 19, 2012. Because the finding involved the loss or degradation of equipment or function specifically designed to mitigate a seismic event, further evaluation using Exhibit 4, “External Events Screening Questions” was required. A detailed risk assessment was performed because the loss of the “1A” PSW pump would degrade a train of a system that supports a risk significant system or function. A regional Senior Reactor Analyst (SRA) performed a detailed risk review of the finding. The SRA calculated the difference between the risk associated with LOOPs with extended recovery times with the “1A” pump available, and without the pump. These risk values were used to bound the difference in the conditional core damage probability due to the seismic event. The result was then multiplied by the frequency for the seismic event. The dominant risk sequences involved Station Blackout and non-recovery of offsite power prior to battery depletion. Because of the low frequency of the seismic event, the finding was determined to be of very low safety significance (Green). The inspectors determined that this finding did not have an associated cross cutting aspect because this finding was not reflective of current licensee performance.

Enforcement: 10 CFR 50, Appendix B, Criterion V, “Procedures, Drawings, and Instructions,” requires in part that activities affecting quality shall be accomplished in accordance with documented instructions, procedures, or drawings, of a type appropriate to the circumstances. Contrary to this requirement, on October 10, 2010, the licensee failed to provide adequate guidance to install the “1A” PSW pump shaft.

Procedure 52PM-P41-036-1, "Unit 1 Plant Service Water Pump and Motor Major Inspection/Overhaul," did not include direction to align the pump column to the true vertical position. The licensee replaced the "1A" PSW pump and returned the pump to an operable status on January 26, 2015. Also, the licensee modified the seismic restraints to ensure proper alignment of the restraints to the pump centerline and revised 52PM-P41-036-1 to ensure the pump column is aligned in the true vertical position. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as CR 10029790. (NCV 05000321/2015003-02, "1A" PSW Pump High Vibration Failure")

4OA5 Other Activities

Operation of an Independent Spent Fuel Storage Installation (ISFSI) (IP 60855.1)

a. Inspection Scope

The inspectors performed a walkdown of the onsite ISFSI and monitored the activities associated with the dry fuel storage campaign completed on August 12, 2015. The inspectors reviewed changes made to the ISFSI programs and procedures, including associated 10 CFR 72.48, "Changes, Tests, and Experiments," screens and evaluations to verify that changes made were consistent with the license or certificate of compliance. The inspectors observed the loading activities to verify that the licensee recorded and maintained the location of each fuel assembly placed in the ISFSI. The inspectors also reviewed surveillance records to verify that daily surveillance requirements were performed as required by technical specifications. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On October 27, 2015, the resident inspectors presented the inspection results to Mr. Richard Spring and other members of the licensee's staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection period.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and was a violation of NRC requirements which met the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

- Technical Specification 3.4.3 requires 10 of 11 safety relief valves (SRVs) to be operable during Mode 1, 2, and 3. Contrary to the above, the licensee identified during bench testing that two safety relief valves failed to lift at the required technical specification setpoint, and therefore were inoperable in Mode 1, 2, and 3. Analysis showed that with the SRVs lifting at the as-found bench test setpoints, the SRVs still would have maintained reactor coolant system pressure below the TS safety limit

requirements. The inspectors determined the violation was of very low safety significance (Green) because the SRVs maintained their functionality. This condition was documented in the licensee's corrective action program as CR 10067922. (Section 4OA3.1)

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel
B. Anderson, Health Physics Manager
G. Brinson, Maintenance Director
B. Duvall, Chemistry Manager
A. Giancatarino, Engineering Director
D. Komm, Operations Director
K. Long, Work Management Director
R. Spring, Plant Manager
J. Collins, Licensing Supervisor
M. Torrance, Nuclear Oversight Manager
D. Vineyard, Vice President
A. Wheeler, Site Projects Manager
J. Whitt, Fire Protection Engineer, SNC Corporate
K. Williams, Fire Protection
M. Terrill, Fire Protection

LIST OF REPORT ITEMS

Closed
LER 05000366/2015-004: Safety Relief Valves As Found Settings Resulted in Not Meeting Tech Spec Surveillance Criteria (Section 4OA3.1)

LER 05000321, 366/2014-004-00, 01, 02, 03, 04, 05: Non-Functional Penetrations Compromise Safe Shutdown Paths in Postulated Fire Event (Section 4OA3.2)

LER 05000321, 366/2014-006-00, 01, 02, 03, 04: Unanalyzed Condition due to Non-Functional Fire Barriers Affecting Both Safe Shutdown Paths during a Postulated Fire (Section 4OA3.2)

LER 05000366/2015-003-00: Unanalyzed Condition due to Non-Functional Fire Barrier Affecting Both Safe Shutdown Paths during a Postulated Fire (Section 4OA3.2)

LER 05000321/2015-002-00: 1A Plant Service Water Pump Misalignment Results in a Condition Prohibited by Tech Specs (4AO3.3)

Opened and Closed
NCV 05000321, 366/2015003-01, Failure to Perform Adequate Surveillance on Fire Barriers and Penetration Seals (Section 4AO3.2)

NCV 05000321/2015-003-02, “1A” PSW Pump High Vibration Failure (Section 4OA3.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather

Other

E.I Hatch Individual Plant Examination of External Events
Unit 2 Final Safety Analysis Report Section 2.4.3 and 3.4

Section 1R04: Equipment Alignment

Procedures

34SO-E11-010-1, "Residual Heat Removal System", Ver. 44.4
34SV-T46-003-1, "Standby Gas Treatment Ventilation and Operability", Ver. 12.1
34SO-T48-002-1, "Containment Atmospheric Control and Dilution Systems," Ver. 23.4
34SO-E21-001-1, "Core Spray System," Ver. 24.2

Drawings

D-11004, P&ID RHRSW, Ver. 42.0
H-16020, SBGT P&ID, Ver. 29.0
H-16174, SBGT P&ID, Ver. 25.0
H-16000, U1 Nitrogen Inerting P&ID, Ver. 53.0
H-16121, U1 Core Spray Piping Plan
H-16122, U1 Core Spray Piping Plan
H-16123, U1 Core Spray Piping Plan
H-16331, U1 Core Spray P&ID Ver. 35.0

Section 1R05: Fire Protection

Procedures

E.I. Hatch Fire Protection Fire Hazards Analysis
42FP-FPX-018-0, "Use, Control and Storage of Flammable/Combustible Materials," Ver. 1.2
34AB-X43-001-1, "Fire Procedure", Ver. 10.25
42SV-FPX-024-0, "Fire Hose Stations – Appendix B Areas," Ver. 3.2
NMP-TR-425, "Fire Drill Program," Ver. 7.3
NMP-ES-035, "Fire Protection Program," Ver. 5.0

Drawings

A-43965 sheet 102A/B, Unit 2 Pre-Fire Plan CRD Pump Room Reactor Bldg. El. Below 130' – 0"
A-43965 sheet 113A/B, Unit 2 Pre-Fire Plan ASD Room A/B Reactor Bldg. El. 158' – 0"
A-43965 sheet 100A/B, Unit 2 Pre-Fire Plan RCIC Pump & Turbine Room Reactor Bldg. El. Below 130' – 0"
A-43965 sheet 106A/B, Unit 2 Pre-Fire Plan 2203F, North CRD Area
A-43965 sheet 107A/B, Unit 2 Pre-Fire Plan 2205F, South CRD Area
A-43965 sheet 103A/B, Unit 2 Pre-Fire Plan HPCI Pump Room Reactor Bldg. El. below 130'-0"

Section 1R11: Licensed Operator Requalification

Drill Scenario: LR-SE-00128-2.2, LR-SE-00152-2.1

Procedures

34SO-N21-007-2, "Condensate and Feedwater System," Ver. 54.0
34GO-OPS-005-2, "Power Changes," Ver. 28.6
34SO-B31-001-2, "Reactor Recirculation System," Ver. 44.7

34GO-OPS-065-0, “Control Rod Movement,” Ver. 12.3
34SV-R43-005-1, “Diesel Generator 1B Semi-Annual Test,” Ver. 17.1

Section 1R12: Maintenance Effectiveness
X43 Maintenance Rule (MR) Scoping Manual Documents
X43 MR Performance Criteria
T46 Maintenance Rule (MR) Scoping Manual Documents
T46 MR Performance Criteria
System Health Report –T46 System – 3rd quarter 2015
NMP-ES-002, “System Monitoring and Health Reporting,” Ver. 18.1
CAR 254925

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation
CR 10104567
Equipment out of Service calculations 7/25/15-8/7/15
Equipment out of Service calculations 9/5/15-9/12/15
NMP-OS-010-002, “Hatch protected equipment logs,” Ver. 10.13

Section 1R15: Operability Evaluations
NMP-AD-012, “Operability Determinations and Functional Assessments,” Ver. 6.0
NMP-OS-006, “Operations Performance Indicators,” Ver. 16.1
34SO-Z41-001-1, “Control Room Ventilation System,” Ver. 22.4
CRs 10094720, 10099795, 536353, 10107796, 750702, 10121193
PDO 1-13-001 Rev 003
H-12675, “Control Building Door Schedule,” Ver. 30.0

Section 1R18: Plant Modifications
Procedures
NMP-ES-044, “Preparation of Design Change Packages,” Ver.13.1
NMP-AD-010, “10 CFR 50.59 Screening/Evaluation,” Ver. 13.0
NMP-AD-008, “Applicability Determination,” Ver. 19.0

Section 1R19: Post Maintenance Testing
MWOs SNC688170, SNC657720, SNC448819, SNC424333

Procedures
NMP-MA-014-001, “Post Maintenance Testing Guidance,” Ver. 4.1
34SO-R43-001-2, “Diesel Generator Standby AC System,” Ver. 28.2
42SV-C11-003-0, “Control Rod Scram Testing,” Ver. 9.2
34SO-T48-002-2, “Containment Atmospheric Control and Dilution Systems,” Ver. 26.2
34SV-E11-001-1, “Residual Heat Removal Pump Operability,” Ver. 25.0

Section 1R22: Surveillance Testing
Procedures
34SV-R43-001-2, “Diesel Generator 2A Monthly Test,” Ver. 28.2
52SV-R42-008-0, “Battery Charger 1A Capacity Test,” Ver. 10.0
34SV-E41-002-2, “HPCI Pump Operability,” Ver. 36.2
42SV-T46-003-1, “Testing of SGT Filter Trains,” Ver. 9.4

Section 1EP6: Drill Evaluation
Drill Scenario: EP-SG-QS004-01, Rev. 1
34AB-S11-001-0, "Operation with Degraded System Voltage," Ver. 4.0

Section 4OA1: Performance Indicator Verification
00AC-REG-005-0, "Preparation and Reporting of NRC PI Data," Ver. 8.0

Section 4OA2: Identification and Resolution of Problems
34SV-T22-001-0, "Secondary Containment Test," Ver. 15.1
CR 10023130
CAR 254875
REA HT-99676, Secondary Containment Drawdown Test – Wind Correction Factor

Section 4OA3: Event Follow-up
Procedures
42FP-FPX-003-0, "Installation of Nelson Electric Fire Stops & Seals," Ver. 3.5
42SV-FPX-018-1/2, "Fire Barrier Surveillance", Ver. 3.0
42SV-FPX-047-0, "Fire Barrier and Penetration Seal 24-Month Visual Surveillance," Ver. 1.0
31GO-OPS-026-0, "Use, Control, and Storage of Flammable/Combustible Materials", Ver. 2.0

Calculations, Evaluations, & Specifications
SMNH 98-023, Fire Protection Pen Seal Deviation Analysis, Version 3.0

Technical Manuals, Vendor Information and Fire Tests
Intertek Report Number 101797927SAT-002A, 11/14/2014
Intertek Report Number 101797927SAT-002B, 11/18/2014

License Basis Documents
E. I. Hatch UFSAR Section 10.8, Rev. 19
E. I. Hatch Nuclear Plant Fire Hazards Analysis and Fire Protection Program, Rev. 31
E. I. Hatch Nuclear Plant Units 1 and 2 Safe Shutdown Analysis Report Rev. 32
SNC-1, Southern Nuclear Operating Company, Inc. Quality Assurance Topical Report, Version 14.0

CRs 705430, 10000590, 725792, 725789, 813679, 10000607, 819991, 10024952, 787279, 809525
TEs 831326, 831341, 831332, 831335, 831392, 831325, 831343, 831340,
Work Order SNC 521993, Repair Fire Penetration Seal

Section 4OA5: Other Activities
Docket 72-36 10 CFR 72.212 Report – Revision 17, 2015 Loading Campaign
Fuel Assembly Certification Datasheets 2015 Loading Campaign
42FH-ERP-014-0, "Fuel Movement," Ver. 21.0
Fuel Movement Sheets 2015 Dry Storage – MPC Loading
Fuel Loading for Cask Load 2015