



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

August 10, 2018

EA-18-100

Mr. Tom Vehec  
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 – NUCLEAR REGULATORY  
COMMISSION INTEGRATED INSPECTION REPORT 05000321/2018002  
AND 05000366/2018002 AND EXERCISE OF ENFORCEMENT DISCRETION**

Dear Mr. Vehec:

On June 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Edwin I. Hatch Nuclear Plant Units 1 and 2. On July 19, 2018, the NRC inspectors discussed the results of this inspection with Gary Brinson and other members of your staff. The results of this inspection are documented in the enclosed report.

There was one violation for which the NRC has exercised enforcement discretion. A violation of 10 CFR Part 50.48(b) was identified because the Edwin I. Hatch Nuclear Plant failed to use one of the means described in Appendix R, Section III.G2.a, b, or c to ensure redundant trains of equipment necessary to achieve and maintain hot shutdown conditions was protected from fire damage. The inspectors determined the violation was not associated with a finding of high safety significance. The enforcement discretion was based on the Enforcement Policy, Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)", a Confirmatory Order (ML16223A467) which extended the period for discretion, and Inspection Manual Chapter 0305.

T. Vehec

2

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Sincerely,

*/RA/*

Alan Blamey, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

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

Enclosure:  
IR 05000321/2018002, 05000366/2018002

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SUBJECT: EDWIN I. HATCH NUCLEAR PLANT – NUCLEAR REGULATORY  
 COMMISSION INTEGRATED INSPECTION REPORT 05000321/2018002  
 AND 05000366/2018002 August 10, 2018

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**U.S. NUCLEAR REGULATORY COMMISSION**  
**Inspection Report**

Docket Numbers: 50-321, 50-366

License Numbers: DPR-57, NPF-5

Report Numbers: 05000321/2018002; and 05000366/2018002

Enterprise Identifier: 2018-002-0057

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Edwin I. Hatch Nuclear Plant

Location: Baxley, Georgia

Inspection Dates: April 1, 2018 to June 30, 2018

Inspectors: C. Jones, Senior Resident Inspector  
J. Hickman, Resident Inspector  
N. Peterka, Fuel Facilities Inspector  
R. Kellner, Senior Health Physicist (71124.06, 71151)  
W. Pursley, Health Physicist (71124.07, 71151)  
W. Monk, Reactor Inspector (71153)

Approved By: A. Blamey, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee's performance by conducting baseline inspections at Edwin I. Hatch, Units 1 and 2 in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC and self-revealed findings, violations, and additional items are summarized in the table below. Licensee-identified non-cited violations are documented in the Inspection Results section of the Report.

### List of Findings and Violations

No NRC-identified findings or violations were identified.

### Additional Tracking Items

Type	Issue number	Title	Report Section	Status
Licensee Event Report (LER)	05000321, 366/2017001-00	Unanalyzed Conditions for a Postulated Fire Discovered During NFPA 805 Transition	71153	Closed
LER	05000321/2018001-00	Condition Prohibited by Tech Specs Due to Secondary Containment Inoperability	71153	Closed
LER	05000321/2018002-00	Performance of Operations with the Potential to Drain the Reactor Vessel (OPDRV) Without Secondary Containment	71153	Closed

## PLANT STATUS

Unit 1 began the inspection period at 100 percent rated thermal power (RTP). On April 4, 2018, power was reduced to 65 percent to replace the 8<sup>th</sup> stage feedwater heater level detectors. The unit returned to 100 percent power on April 5, 2018 and operated at or near 100 percent RTP for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent RTP. On April 17, 2018, power was reduced to 50 percent RTP to repair a condenser tube leak in the 2C waterbox, and returned to 100 percent power on April 24, 2018. On May 6, 2018, power was reduced to 50 percent RTP to repair a condenser tube leak in the 2B waterbox, and returned to 100 percent power on May 12, 2018. On May 19, 2018, the unit was taken offline due to high drywell temperatures caused by inoperable return air fans. The unit returned to 100 percent RTP on May 26, 2018 and operated at or near 100 percent RTP for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards."

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Summer Readiness (1 Sample)

The inspectors evaluated summer readiness of offsite and alternate alternating current (AC) power systems.

### 71111.04 - Equipment Alignment

#### Partial Walkdown (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Unit 2 – 'A' and 'B' loops of core spray (CS) train while the 'A' loop of residual heat removal (RHR) was out of service for maintenance on April 9, 2018
- (2) Unit 1 – 'C' emergency diesel generator (EDG) alignment was verified after a minor maintenance package was completed on April 23, 2018
- (3) Unit 2 – 'A' EDG alignment after day tank cleaning and limit switch repairs following a failed surveillance on June 1, 2018

## 71111.05AQ - Fire Protection Annual/Quarterly

### Quarterly Inspection (6 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Unit 1, 'A' and 'B' Station Battery Rooms
- (2) Unit 1, High Pressure Core Injection (HPCI) Room, Fire Zone 1205Z
- (3) Unit 1, Southeast (SE) Diagonal, Fire Zone 1203B
- (4) Unit 1 Control Rod Drive (CRD) and Drywell Sump, Fire Zone 1205C
- (5) Unit 1 and Unit 2 Reactor Protection System (RPS) Rooms, Fire Zones 2009, 2010, 1009 and 1010
- (6) Unit 1 and Unit 2 Control Room Roof, Fire Zone 0031

## 71111.06 - Flood Protection Measures

### Cables (1 Sample)

The inspectors evaluated cable submergence protection in PB2-B and PB2-D, Inground Pullbox on May 7, 2018.

## 71111.07 - Heat Sink Performance

### Heat Sink (1 Sample)

The inspectors evaluated the Unit 1 'B' Emergency Diesel Generator heat exchanger performance on May 8, 2018.

## 71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

### Operator Requalification (1 Sample)

The inspectors observed and evaluated a crew of licensed operators in the plant's simulator during licensed operator requalification training on April 24, 2018.

### Operator Performance (1 Sample)

The inspectors observed and evaluated Unit 1 Reactor Operator performance during load reduction to 65 percent power to replace 8<sup>th</sup> stage feedwater heater level detectors on April 4, 2018. The inspectors observed and evaluated Unit 2 Reactor Operator performance during the transfer of the RPS Bus from the alternate power supply to the motor generator (MG) Set, and two load reductions to 50 percent power to complete condenser tube leak repairs on April 3, April 17, and May 6, 2018.

### 71111.12 - Maintenance Effectiveness

#### Routine Maintenance Effectiveness (2 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Unit 2, Turbine building sump pump torque coupling failure on May 10, 2018.
- (2) Unit 2, High fuel oil supply differential pressure resulting in the inoperability of the 2A EDG on May 29, 2018.

### 71111.13 - Maintenance Risk Assessments and Emergent Work Control (5 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 1 risk assessment for the removal of the 230KV Bus 2 for degraded grid upgrade on April 2, 2018.
- (2) Unit 1 and 2 risk assessment for the removal of the '1C' startup transformer (SUT) outage on April 19, 2018.
- (3) Unit 2 risk assessment for concurrent work on the 2A RHR system and 2C plant service water (PSW) pump on May 3, 2018.
- (4) Unit 1 elevated risk during the 1B EDG maintenance outage on May 8, 2018.
- (5) Unit 1 and 2 elevated risk during 2A EDG inoperability on May 30, 2018.

### 71111.15 - Operability Determinations and Functionality Assessments (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 1 – RHR loops had increased pressure and required venting of loops to lower pressure on April 22, 2018
- (2) Unit 1 and Unit 2 – pull boxes discovered with higher than acceptable water levels during weekly inspections on April 26, 2018
- (3) Unit 1 – through wall leak was discovered on Division 1 PSW piping on June 4, 2018
- (4) Unit 1 – out of tolerance output voltage on 1B motor generator (MG) set of RPS on June 26, 2018
- (5) Unit 2 – 2A EDG declared inoperable due to degraded fuel oil system on June 26, 2018
- (6) Unit 1 – non-conforming breaker settings on ECCS room coolers on June 12, 2018

### 71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Unit 2 – Drywell return air fan motor replacement with a lower horsepower unit



#### 71111.19 - Post Maintenance Testing (9 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) 34SV-E11-001-2, Residual Heat Removal Pump Operability after the 'B' loop maintenance outage on April 8, 2018
- (2) 34SV-R43-006-1, 1C EDG monthly test following a minor maintenance outage on April 18, 2018
- (3) 34SV-C11-003-1, U1 Control rod exercise following repairs to the rod select 30-51 switch replacement on May 2, 2018
- (4) 34SV-C11-003-1, U1 Control rod exercise following repairs to the rod select 34-51 switch on May 1, 2018
- (5) 34SV-R43-005-2, Emergency diesel generator 1B semi-annual test following a maintenance outage on May 15, 2018
- (6) 34SO-B31-001-2, Reactor recirculation system test following the 2B adjustable speed drive (ASD) loss of flow indication on May 29, 2018
- (7) 34SV-R43-011-2, Emergency diesel generator 2A 24 month operability test following high fuel filter differential pressure and limit switch repairs on May 30, 2018
- (8) 34SO-C51-001-0, TIP system operation and LPRM calibration following CMDAS (process computer) failure during TIP run on June 15, 2018
- (9) 34IT-E51-003-1, RCIC speed control test following a Unit 1 RCIC system outage on June 15, 2018

#### 71111.20 - Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated the Unit 2 forced outage activities from May 19, 2018 to May 26, 2018.

#### 71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

##### Routine (5 Samples)

- (1) 34SV-C1-005-005-2, Turbine Control Valve Fast Closure Instrument Functional Test, Ver.17.0
- (2) 34SV-E11-001-2, Residual Heat Removal Pump Operability, Ver. 19.3
- (3) 34SV-SUV-019-2, Surveillance Checks (Unidentified Leak rate Calculation), Ver. 41.15
- (4) 64CH-SAM-025-0, Reactor Coolant Sampling and Analysis, Ver. 44.2
- (5) 52PM-P41-036-2, Unit 2 Plant Service Water Pump and Motor Major Inspection/Overhaul, Ver.9.0

##### In-service (1 Sample)

- (1) 34SV-E21-001-1, Core Spray Pump Operability, Ver. 22.3

## 71114.06 - Drill Evaluation

### Emergency Planning Drill (1 Sample)

The inspectors evaluated a simulator based emergency scenario on April 24, 2018.

## **RADIATION SAFETY**

## 71124.06 - Radioactive Gaseous and Liquid Effluent Treatment

### Walk Downs and Observations (1 Sample)

The inspectors evaluated the licensee's radioactive gaseous and liquid effluent treatment systems during plant walkdowns.

### Calibration and Testing Program (Process and Effluent Monitors) (1 Sample)

The inspectors evaluated the licensee's gaseous and liquid effluent monitor instrument calibration and testing.

### Sampling and Analyses (1 Sample)

The inspectors evaluated radioactive effluent sampling and analysis activities.

### Instrumentation and Equipment (1 Sample)

The inspectors evaluated radioactive effluent instrumentation and equipment.

### Dose Calculations (1 Sample)

The inspectors evaluated dose calculations.

## 71124.07 - Radiological Environmental Monitoring Program

### Site Inspection (1 Sample)

The inspectors evaluated the licensee's radiological environmental monitoring program.

### Groundwater Protection Initiative Implementation (1 Sample)

The inspectors evaluated the licensee's groundwater monitoring program.

## **OTHER ACTIVITIES – BASELINE**

### 71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below for the period from April 2017 through March 2018 (6 Samples)

- (1) Reactor coolant system (RCS) specific activity, BI01, both units (2 Samples)
- (2) RCS leakage, BI02, both units (2 Samples)
- (3) Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences, PR01 (1 Sample)
- (4) Occupational Exposure Control Effectiveness Sample, OR01 (1 Sample)

### 71152 - Problem Identification and Resolution

#### Semiannual Trend Review (1 Sample)

The inspectors reviewed the licensee's corrective action program for trends that might be indicative of a more significant safety issue.

- (1) Unit 1 PSW seismic restraints (CRs 10238732, 10319598, 10328432, 10458271)

#### Annual Follow-up of Selected Issues (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Unit 2 Control Rod 34-23 Mispositioned, CR 10492356

### 71153 - Follow-up of Events and Notices of Enforcement Discretion

#### Licensee Event Reports (3 Samples)

The inspectors evaluated the following licensee event reports which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) LER 05000321, 366/2017-001-00: Unanalyzed Conditions for a Postulated Fire Discovered During NFPA 805 Transition
- (2) LER 05000321/2018-001-00, Condition Prohibited by Tech Specs Due to Secondary Containment Inoperability, on Jan. 20, 2018
- (3) LER 05000321/2018-002-00, Performance of Operations with the Potential to Drain the Reactor Vessel (OPDRV) Without Secondary Containment, on Feb. 9, 2018

## INSPECTION RESULTS

Observation	71124.07- Radiological Environmental Monitoring Program
<p><u>NEI 07-07 Groundwater Protection Initiative (GPI) Implementation</u></p> <p>No violations of regulatory requirements were identified. During performance of Inspection Procedure 71124.07, “Radiological Environmental Monitoring Program (REMP)”, inspectors noted three examples where the licensee failed to provide timely communication to State/Local officials when elevated tritium levels in ground water samples indicated a new onsite leak or spill had occurred. Per NEI 07-07, “Industry Ground Water Protection Initiative – Final Guidance Document”, Objective 2.2, a licensee shall make informal communication as soon as practicable to appropriate State/Local officials, with follow-up notification to the NRC, as appropriate, regarding significant (&gt; 100 gallon) onsite leaks/spills or ground water well sample results, from sources that could be used as drinking water, that exceed the reporting criteria in the REMP. These reports should be made before the end of the next business day. Contrary to this, in January 2016, January 2017, and February 2018, ground water samples from monitoring well T-12 , located inside the protected area of the plant in close proximity to the Unit One Condensate Storage Tank (CST), showed anomalous tritium spikes of 400,000 pCi/L, 120,000 pCi/L, and 400,000 pCi/L respectively, yet informal reports to State and Local officials were not made before the end of the next business day and, for the leak in 2017, was not reported at all. Due to historical leaks in the area around the CSTs, the licensee had created reporting criteria for T-12 sample results that were higher than the 20,000 pCi/L threshold specified in the REMP. The communication protocol in NEI 07-07 is meant to drive the reporting of new spills and leaks, not to require multiple reports for the same historical tritium plume as it moves through the subsurface. However, in this case, the licensee had created a reporting threshold that was too high to allow for timely recognition of new leaks. NEI 07-07 also states that any changes to the reporting thresholds need to be agreed upon by State and Local stakeholders and that such agreements shall be documented. The inspectors noted that no such stakeholder agreements to substantially increase reporting thresholds had been made. Also, monitoring well T-12 is not a source of site or public drinking water.</p> <p>In addition, NEI 07-07, Objective 2.4, requires licensees to include any voluntary communications performed under Objective 2.2 in either the Annual Radiological Environmental Operating Report (AREOR) or Annual Radioactive Effluent Release Report (ARERR). Contrary to this, the voluntary communication made in 2016 was not included in either of the 2016 annual reports.</p>	

Observation	71152- Problem Identification and Resolution
<p><u>Semi-Annual Trend Review: Unit 1 PSW seismic restraints</u></p> <p>No findings of significance were identified. The inspectors did observe that there continued to be material problems with the seismic restraints on the Unit 1 Plant Service Water suction piping as documented in CRs during this period. The licensee completed their 2018 annual structural monitoring program for both units and as documented in CRs, it was noted that the seismic restraints continued to degrade on the Unit 1 Plant Service Water piping, specifically the seismic restraint studs and bolts. The licensee first documented degradation on the restraints in 2016 and in the following years, it had been noted that the corrosion of the studs, bolts and degradation of the protective coating had steadily progressed. After reviewing associated CRs, performing a walkdown of the affected seismic restraints, and interviewing the structural engineer, it was determined that the licensee identified the issues, evaluated the root causes, and have taken appropriate corrective actions. The inspectors however, noted a weakness in the monitoring program for the plant service water seismic restraints. As defined in the structural monitoring program procedure, there is no deterministic or testing criteria for when a structures integrity would be considered degraded to such a condition that it would not be able to perform its safety function. Currently, the corrosion and coating degradation on the seismic restraints is evaluated visually only and based on a licensed engineer’s professional judgement. No measurements or mechanical tests are performed to determine if the corrosion has affected the seismic restraints beyond what is visible on the surface. No similar issues were identified on the Unit 2 seismic restraints because they are of a different design.</p> <p>In general, the licensee has identified trends and has addressed the trends with their corrective action program. No new adverse trends were identified this period that had not already been identified by the licensee.</p>	

Observation	71152- Problem Identification and Resolution
<p><u>Annual Follow-up of Selected Issues: Unit 2 Control Rod 34-23 Mispositioned</u></p> <p>The inspectors performed a review regarding the licensee’s assessments and corrective actions associated with CR 10492356, “Control Rod 34-23 Mispositioned.” Specifically, on May 11, 2018, operations, while performing rod pattern adjustments in accordance with the reactivity plan, withdrew rod 38-27 and received a rod block annunciator. The operator selected control rod 34-23 in order to clear the rod block alarm and noticed that rod 34-23 had inserted one notch from 48 to 46. The shift entered 34AB-C11-004-2S, “Mispositioned Control Rods” Version 4.3, and rod 34-23 was returned to position 48. Troubleshooting revealed no equipment issues and rod pattern adjustments were completed on May 12, 2018. Further investigation revealed that that the operator did not wait the required 5 seconds to allow the relay to reposition as required by 34GO-OPS-065-0, “Control Rod Movement”. A Stand Down for each shift was performed to review this event and procedural guidance. The assigned corrective actions taken by the licensee identified issues with verification practices and procedure use and adherence. The inspectors determined that the corrective actions developed as a result of the condition reports were reasonably commensurate with the safety significance of the control rod drive system.</p>	

Enforcement Discretion	Enforcement Action (EA)-18-100: Unanalyzed Conditions for a Postulated Fire Discovered During NFPA 805 Transition	71153(1) - Follow-up of Events and Notices of Enforcement Discretion
<p><u>Description:</u> On April 3, 2017, the licensee submitted Licensee Event Report (LER) 05000321, 366/2017-001-00: Unanalyzed Conditions for a Postulated Fire Discovered During NFPA 805 Transition documenting the discovery of a condition of non-compliance with the site's fire protection program (FPP). In preparation for transiting the fire protection licensing basis from 10 CFR 50.48(b) (Appendix R) to 10 CFR 50.48(c) (NFPA 805), a weak-link and operator manual action analysis was completed for Information Notice 92-18 type hot shorts on motor operated valves (MOV). The licensee's examination of their Appendix R Safe Shutdown Analysis identified circuit configurations in multiple fire areas where an Appendix R postulated fire could impact the ability to achieve safe shutdown conditions. The licensee failed to protect MOV cables associated with the RHR and RCIC emergency cooling systems in fire areas 0024 (Main Control Room), 1203F (Unit 1 Reactor Building), 1205F (Unit 1 Reactor Building), and 2203F (Unit 2 Reactor Building). Specifically, the licensee failed to ensure that fire induced cable impacts cannot bypass the limit and torque switches and result in physical damage to the MOVs, thus preventing the MOVs from being operated from the Main Control Room, Remote Shutdown Panel, or locally. This condition could prevent operators from achieving and maintaining safe shutdown (SSD) of the plant in the case of a postulated fire.</p> <p>A licensee-identified non-compliance with 10 CFR Part 50, Appendix R, Section III.G.2, was identified for the licensee's failure to protect one of the redundant trains of equipment needed to achieve post-fire SSD from fire damage. Specifically, the licensee failed to use one of the means described in Appendix R, Section III.G.2.a, b, or c to ensure that one of the redundant trains of equipment necessary to achieve and maintain hot shutdown conditions was protected from fire damage.</p> <p>The inspectors performed a detailed review of the information and documents related to the LER and discussed the condition with the licensee to assess the adequacy of the licensee's compensatory measures and corrective actions.</p> <p>Corrective Action(s): Hourly fire watches and Fire Action Statements were initiated to address the postulated condition for the identified MOVs. Additionally, the licensee committed to completing physical plant modifications to the impacted MOVs during the next Unit 1 and Unit 2 plant refueling outages to rectify the issue of potential spurious operation of the associated MOVs associated with this LER.</p> <p>Corrective Action Reference(s): The licensee entered this issue into their Corrective Action Program (CAP) as condition reports (CRs) 10326399, 10326401, 10326402, 10326404, and 10326405.</p>		
<p><u>Enforcement:</u></p> <p>Violation: 10 CFR Part 50.48(b)(1) requires that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of 10 CFR Part 50, Appendix R, Section III.G. 10 CFR 50, Appendix R, Section III.G.2, states, in part, that where cables or equipment, that could prevent operation or cause mal-operation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:</p>		

- (a) separation of cables and equipment by a fire barrier having a 3-hour rating,
- (b) separation of cables and equipment by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards and with fire detectors and an automatic fire suppression system in the fire area, or
- (c) enclosure of cables and equipment in a fire barrier having a 1-hour rating and with fire detectors and an automatic fire suppression system in the fire area.

Contrary to the above, the licensee failed to use one of the means described in Appendix R, Section III.G.2.a, b, or c to ensure that one of the redundant trains of equipment necessary to achieve and maintain hot shutdown conditions was protected from fire damage. Specifically from October 1974 to April 2017, the licensee had not met the requirements of 10 CFR Part 50.48(b) to identify and protect cabling of 51 Unit 1 and Unit 2 RHR and RCIC emergency cooling system MOVs in fire areas 0024 (Main Control Room), 1203F (Unit 1 Reactor Building), 1205F (Unit 1 Reactor Building), and 2203F (Unit 2 Reactor Building). On April 3, 2017, the licensee identified the failure to protect equipment that was required to mitigate fire events and determined that fire damage could cause mal-operation of the affected MOVs, potentially leading to fire induced cable impacts which bypass the limit and torque switches and result in physical damage to the MOVs, thus preventing the MOVs from being operated from the Main Control Room, Remote Shutdown Panel, or locally. A fire-induced failure could have caused the loss of the required Safe Shutdown components.

Severity/Significance:

Failure to protect one train of cables and equipment necessary to achieve post-fire SSD from fire damage for fire areas designated in the Fire Protection Program (FPP) as meeting Appendix R, Section III.G.2, was a performance deficiency. This finding was more than minor because it was associated with the reactor safety mitigating system cornerstone attribute of protection against external events (i.e., fire). Specifically, failure to protect safe shutdown cables and equipment from fire damage negatively affected the reactor safety mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Because this issue relates to fire protection and this non-compliance was identified as a part of the site's transition to NFPA 805, this issue is being dispositioned in accordance with Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)" of the NRC Enforcement Policy.

The significance of this licensee-identified non-compliance with 10 CFR Part 50, Appendix R, Section III.G.2, was determined by the results of the IMC 0609, Appendix F, "Fire Protection Significance Determination Process," Phase III Quantitative Screening Approach. The quantitative screening approach performed by a Region II Senior Risk Analyst resulted in a calculated delta core damage frequency (CDF) of less than 1E-04, which screens this non-compliance to less-than-red significance. Additionally, in order to verify that this non-compliance was not associated with a finding of high safety significance (Red), inspectors reviewed qualitative and quantitative risk analyses performed by the licensee. These risk evaluations took ignition source and target information from the ongoing HNP fire PRA to demonstrate that the significance of the non-compliances were less-than-red (i.e.  $\Delta$ CDF less than 1E-4/year). The inspectors also performed walk-downs to verify key assumptions were applicable. Based on the ignition frequency of fire sources in the affected areas, inspectors determined that the significance of this non-compliance was less-than-red. The inspectors also noted that the values in the licensee's quantitative analysis were conservative, in that they used screening values instead of more detailed values. This provided additional

confidence that this non-compliance was not associated with a finding of high safety significance (Red).

The inspectors determined that no cross cutting aspect was applicable to this performance deficiency because this finding was not indicative of current licensee performance.

Basis for Discretion:

The NRC exercised enforcement discretion in accordance with Enforcement Policy, Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)", a Confirmatory Order (ML16223A467) which extended the period for discretion, and Inspection Manual Chapter 0305. On April 4, 2018 (ML18096A955), the licensee submitted a license amendment request to adopt NFPA 805 and change their fire protection licensing bases to comply with 10 CFR 50.48(c). The inspectors reached this conclusion due to the fact that this issue was licensee-identified and will be addressed during the licensee's transition to NFPA 805, it was entered into the licensee's corrective action program, immediate corrective action and compensatory measures were taken, it was not likely to have been previously identified by routine licensee efforts, it was not willful, and it was not associated with a finding of high safety significance (Red).

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On July 19, 2018, the inspectors presented the quarterly baseline inspection results to Gary Brinson, and other members of the licensee staff.



## DOCUMENTS REVIEWED

### **71111.01: Adverse Weather Protection**

#### Procedures:

34AB-S11-001-0, Operation with Degraded System Voltage, Ver. 4.1  
NMP-OS-020, Station Response to Southern Company Alert Conditions, Ver. 1.2

### **71111.04: Equipment Alignment**

#### Procedures:

34SO-R43-001-1, Attachment 3, Diesel Generator 1A and 1C Valve Lineup, Ver. 28.1  
34SO-E21-001-2, Attachment 3, Core Spray System Valve Lineup, Ver. 25.11  
34SO-R43-001-2, Attachment 3, Diesel Generator 2A and 2C Valve Lineup, Ver. 29

#### Drawings:

H-11631 Sht. 1, Diesel Generator 1A & 1C P&ID Sheet 1, Unit 1, Ver. 31.0  
H-11600 Sht. 2, P&ID for Service Water at Diesel Generator, Unit 1, Ver. 37.0  
H-21074, Diesel Engine & Fuel Oil System P&ID, Unit 2, Ver. 55.0

#### Documents:

Unit 1 Technical Specifications, Amendment 288  
Unit 2 Technical Specifications, Amendment 234

#### Condition Reports:

10498152

### **71111.05AQ: Fire Protection Annual/Quarterly**

#### Drawings:

A-43965 Sht. 54B, CRD and Drywell Sump Room, Fire Zone 1205C, Ver. 2.0  
A-43966 Sht. 50B, Control Room Roof, Fire Zone 0031, Ver. 1.0  
A-43965 Sht. 51B, South East Residual Heat Removal and Core Spray Room Unit 1, Fire Zone 1203B, Ver. 2.0  
A-43965 Sht. 22B, RPS Battery Room 2B, Fire Zone 2010, Ver. 4.0  
A-43965 Sht. 14B, RPS Battery Room 1B, Fire Zone 1009, Ver. 2.0  
A-43965 Sht. 15B, RPS Battery Room 1A, Fire Zone 1010, Ver. 4.0  
A-43965 Sht. 21B, RPS Battery Room 2A, Fire Zone 2009, Ver. 3.0  
A-43965 Sht. 55B, Unit 1 HPCI Pump Room, Fire Zone 1205Z, Ver. 2.0

#### Documents:

Fire Protection Fire Hazards Analysis (FHA), Rev. 36.0

#### Condition Reports (\*NRC Identified):

\*10480359   \*10486412   \*10487128   \*10488339   \*10491165   \*10491167

### **71111.06: Flood Protection Measures**

#### Procedures:

52PM-Y46-001-0, Inground Pullbox Debris Removal/Inspection, Ver. 10.0

#### Documents:

Hatch Final Safety Analysis Report, Section 2.4, Rev. 36.0

Condition Reports:

10490488

**71111.07: Heat Sink Performance**

Procedures:

NMP-ES-012, Heat Exchanger Program, Ver. 11.0

NMP-ES-024-701, Eddy Current Testing of Heat Exchanger Tubing, Ver. 3.1

NMP-MA-027, Heat Exchanger Tube Plugging, Ver. 3.0

42IT-TET-012-1, Plant Service Water and RHR Service Water Piping Inspection Procedure,  
Ver. 2.14

52SV-R43-001-0, Diesel, Alternator, and Accessories Inspection, Ver. 30.4

Work Orders:

SNC600263

Condition Reports:

10491516

**71111.11: Licensed Operator Regualification Program**

Procedures:

34SO-C71-001-2, 120 VAC RPS Supply System, Ver. 15.0

34GO-OPS-005-1, Power Changes, Ver. 29.1

34GO-OPS-005-2, Power Changes, Ver. 30

Documents:

Plant Hatch Emergency Preparedness 2018 Plant Drill 01, dated April 24, 2018

Condition Reports (\*NRC Identified):

\*10484362   \*10488628   \*10487777

**71111.12: Maintenance Effectiveness**

Procedures:

NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear  
Power Plants, Rev. 4A

NMP-ES-027, Maintenance Rule Program, Ver. 7.0

NEI 99-02, Regulatory Assessment Performance Indicator Guideline. Rev. 7

Documents:

Maintenance Rule Unavailability Hours - 1R28 Outage

(A)(1) Evaluation for 1B Reactor Feed Pump

Maintenance Rule Expert Panel Meeting Minutes, 2018-04

2A EDG (2R43-S001A) Past Operability Review, 2018-06

R43-01: Stand-by A/C Power Maintenance Rule Evaluation, 2018-06

Condition Reports:

10468179   10480228   10489583   10498152

**71111.13: Maintenance Risk Assessments and Emergent Work Evaluation**

Procedures:

NMP-OS-010-002, Hatch Protected Equipment Logs, Ver. 11.0

Documents:

- Equipment Out of Service Calculations 4/02/2018
- Equipment Out of Service Calculations 4/18/2018
- Equipment Out of Service Calculations 5/3/2018
- Equipment Out of Service Calculations 5/8/2018
- Equipment Out of Service Calculations 5/30/2018

Drawings:

- 01-10-00 Sht. 09-100, Georgia Integrated Transmission System Substation Diagram, Hatch 500/230KV, Revised 04/16/2018
- 01-10-00 Sht. 09-101, Georgia Integrated Transmission System Substation Diagram, Hatch Unit 1, Revised 04/03/2018

**71111.15: Operability Determinations and Functionality Assessments**

Procedures:

- NMP-AD-012, Operability Determinations and Functionality Assessments, Ver. 13.3
- NMP-AD-012-GL02, Functionality Assessment Guideline, Ver. 6.0
- NMP-AD-012-GL03, Immediate Determination of Operability Guidelines, Ver. 3.0

Documents:

- Unit 1 Technical Specifications, Amendment 288
- Unit 2 Technical Specifications, Amendment 234
- Past Operability Review, 2A EDG
- Prompt Determination of Operability (PDO), Containment Spray (CS) and Residual Heat Removal (RHR) Room coolers, Rev. 1-18-004
- PDO, Unit 1 Division 1 Plant Service Water (PSW) Supply Header, Rev. 1-18-003/1.0
- Troubleshooting Log, Unit 1 RHR Increased Loop Pressure, Dated May 15, 2018

Condition Reports:

10484768	10485173	10486169	10486859	10492952	10493644
10497648	10498152	10498463	10498509	10498527	10502759
10504784	10505033				

**71111.18: Plant Modifications**

Procedures:

- NMP-ES-054, Temporary Modifications, Ver. 3.1
- NMP-ES-054-001, Temporary Modification Processing, Ver. 3.2

Documents:

- SNC947269, 2T47C001A Drywell Return Air Fan Motor Replacement, Rev. 1.0

Condition Reports:

*10490986	10494186	10496217	10496360	10496486
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**71111.19: Post Maintenance Testing**

Procedures:

NMP-MA-009-001, Foreign Material Exclusion Program Requirements, Ver. 10.0  
NMP-MA-014-001, Post Maintenance Testing Guidance, Ver. 4.3  
34IT-E51-003-1, RCIC Turbine Speed Control Test, Ver. 5.4  
34SO-B31-001-2, Reactor Recirculation System, Ver. 46.8  
34SO-C51-001-0, TIP System Operation and LPRM Calibration, Ver. 19.1  
34SV-C11-003-1, Rod Control Exercise, Ver. 17.3  
34SV-R43-006-1, Diesel Generator 1C Monthly Test, Ver. 14.1  
34SV-R43-005-2, Diesel Generator 1B Semi-annual Test, Ver. 20.0  
34SV-R43-011-2, Diesel Generator 2A 24 Month Operability Test, Ver. 5.2

Work Orders:

SNC690520   SNC858864   SNC907093   SNC947513

Condition Reports:

10436719   10480898   10498527   10501621

**71111.20: Refueling and Other Outage Activities**

Condition Reports:

10497957   10497975

Procedures:

34GO-OPS-001-2, Plant Startup, Ver. 49.1  
34GO-OPS-013-2, Normal Plant Shutdown, Ver. 32.2

**71111.22: Surveillance Testing**

Procedures:

34SV-C1-005-005-2, Turbine Control Valve Fast Closure Instrument Functional Test, Ver.17.0  
34SV-E11-001-2, Residual Heat Removal Pump Operability, Ver. 19.3  
34SV-E21-001-1, Core Spray Pump Operability, Ver. 22.3  
34SV-SUV-019-2, Surveillance Checks (Unidentified Leak rate Calculation), Ver. 41.15  
52PM-P41-036-2, Unit 2 Plant Service Water Pump and Motor Major Inspection/Overhaul,  
Ver.9.0  
64CH-SAM-025-0, Reactor Coolant Sampling and Analysis, Ver. 44.2

Work Orders:

SNC889958   SNC889964

Condition Reports (\*NRC Identified):

\*10484161   \*10489655

**71114.06: Drill/Training Evaluation**

Documents:

Plant Hatch Emergency Preparedness 2018 Plant Drill 01, dated April 24, 2018

## **Section 71124.06 - Radioactive Gaseous and Liquid Effluent Treatment**

### Procedures, Guidance Documents, and Manuals

64CH-RPT-006-0, Liquid Effluent Reports, Ver. 22.1

64CH-RPT-007-06, Gaseous Effluent Reports, Ver. 9.1

64CH-SAM-028-0, Releases via Planned and Unplanned Routes: Sampling and Analysis, Ver. 10.2

64CI-OCB-001-0, Main Stack Radiation Monitoring, Ver. 13.1

64CI-OCB-002-1, Unit One Reactor Building Vent Radiation Monitoring, Ver. 12.1

64CI-OCB-002-2, Unit Two Reactor Building Vent Radiation Monitoring, Ver. 16.2

64CI-OCB-003-1, Recombiner Building Vent Radiation Monitoring, Ver. 14.2

HNP-ODCM, Offsite Dose Calculation Manual for Edwin I. Hatch Nuclear Plant, Ver. 24

### Records and Data

Calibration Record, Source Calibration of Main Stack Radiation Monitor 1D11-K600A per Procedure 64CI-OCB-001-0, 01/25/2016

Calibration Record, Source Calibration of Main Stack Radiation Monitor 1D11-K600B per Procedure 64CI-OCB-001-0, 01/25/2016

Calibration Record, Source Calibration of Unit 2 Reactor Building Vent (Normal Range) Radiation Monitor 2D11-K636A per Procedure 64CI-OCB-002-2, 09/07/2016

Calibration Record, Source Calibration of Unit 2 Reactor Building Vent (Normal Range) Radiation Monitor 2D11-K636B per Procedure 64CI-OCB-002-2, 09/07/2016

Calibration Record, Source Calibration of Unit 1 Recombiner Building Vent Radiation Monitor 1D11-K763B per Procedure 64CI-OCB-003-1, 04/25/2017

Certificate of Calibration, Standard Radionuclide Source, S/N 93549F [HNP source ID # Cd-109-147], 06/23/2013

Certificate of Calibration, Standard Radionuclide Source, S/N 73715-06 [HNP source ID # Co-60-146], 09/18/2006

Certificate of Calibration, Standard Radionuclide Source, S/N 73713-06 [HNP source ID # Cs-137-284], 09/18/2006

Interlaboratory Cross-Check Results, First and Third Quarters 2017, Various Dates

Waste Stream Characterization (10 CFR Part 61 Analysis Data) Data, Dry Active Waste (DAW), U-1 and U-2 CPS Resin, U1 and U-2 Primary Resin, 02/02/2018 thru 02/05/2018

Work Order (WO) SNC523180, Calibration of U-1 Main Vent Stack and Reactor Building Vent Stack Accident Range Radiation Monitors 1D11-P007 [after detector replacement], 11/21/2014

WO SNC534541 and SNC730521, Calibration of U-2 Reactor Building Vent Stack Accident Range Radiation Monitors 2D11P601, 08/25/2014 and 08/07/2017

WO's SNC562755 and SNC754124, Calibration of U-2 Drywell High Range Radiation Monitor 2D11K621A and B, 01/03/2015 and 01/26/2017

WO SNC 617713, Control Room Habitability Filter Testing, Train Z41-D004A [Filter DOP Test and Charcoal Sample Analysis], 10/19/2016

WO SNC 617716, Control Room Habitability Filter Testing, Train Z41-D004B [Filter DOP Test and Charcoal Sample Analysis], 11/29/2016

WO's SNC643031 and SNC821119, Calibration of U-1 Drywell High Range Radiation Monitors 1D11K621A and B, 12/27/2015 and 09/27/2017

WO SNC754510, Calibration of U-1 Main Vent Stack and Reactor Building Vent Stack Accident Range Radiation Monitors 1D11-P007 and 1D11-P601, 03/11/2017

Hatch Annual Radiological Environmental Operating Report (AREOR) for 2016 and 2017,  
5/15/2017 and 5/14/2018

Hatch Annual Radioactive Effluent Release Report (ARERR) for 2016 and 2017, 4/26/2017 and  
4/25/2018

#### Corrective Action Program (CAP) Documents

CAR 265571

CAR 267517

CAR 268927

CR 10255887

CR 10278613

CR 10338211

CR 10339649

CR 10410370

CR 10425479

NMP-GM-002, Corrective Action Program, Ver. 14.1

NMP-GM-002-001, Corrective Action Program Instructions, Ver. 36.2

#### **Section 71124.07 - Radiological Environmental Monitoring Program**

##### Procedures, Guidance Documents, and Manuals

57IT-Y33-001-0, Climatronics Instruments, Ver. 7.4

64EV-ENV-001-0, Airborne Dust and Gaseous Iodine Air Sampling Flow Calibration, Ver. 1.0

64EV-ENV-002-0, Airborne Dust and Gaseous Iodine Sampling, Ver. 1.2

64EV-ENV-009-0, River Water Sampling, Ver. 1.0

NMP-EN-002, Radiological Groundwater Protection Program, Ver. 7.0

NMP-EN-002-GL02, HNP Groundwater Monitoring Plan for Radionuclides, Ver.1.0

NMP-EN-002-GL04, Radiological Groundwater Protection Program Technical Bases, Ver. 1.0

##### Records and Data

Edwin I. Hatch Nuclear Generating Plant Environmental OSLD Data for 2016 and 2017

Edwin I. Hatch Nuclear Generating Plant 2016 Annual Groundwater Monitoring Report

Edwin I. Hatch Nuclear Power Plant EPRI Priority Index Worksheet, October 2017 Revision

Georgia Power Environmental Radiochemistry - 2016 Performance Evaluation Samples

Georgia Power Environmental Radiochemistry - 2017 Performance Evaluation Samples

Gamma Spectrum Analysis U1 CST for 2016, 2017 and 2018 to date, APEX Numbers 72515,  
73802, 74947, 75741, 76388, 77318, 78001, 78586, 79588, 80446, 81293, 81308, 82015,  
82889, 84365, 85647, 86388, 87032, 87855, 88526, 89151, 89886,90397, 91096,91698,  
92271, 92483, 92484, 93321, 94071, 94650 and 95344

Gamma Spectrum Analysis U2 CST for 2016, 2017 and 2018 to date, APEX Numbers 72516,  
73382, 74950, 75742, 76389, 77317, 78002, 78587, 79589, 80483, 81292, 82049,82890,  
84366, 85648, 86389, 87033, 87035, 87856, 88527,88564, 89152, 89821, 90398, 91097,  
91699, 92272, 93309, 94639 and 95270,

Georgia Power Environmental Lab Radiochemistry Gamma Isotopic Result for Sample Number  
1-2018-03-02-12-2018.

Hatch Nuclear Plant Work Practices Risk Assessment, 2017

HNP Air Sampler Calibration Field Sheets for Sample Station #s 103, 107, 112, 116 & 304,  
dated 10/14/2016 and 04/10/2017

ODCM for Edwin I. Hatch Nuclear Plant, Version 24.0

R-2744291H-006, Plant Hatch Annual Meteorological Report 2016, Rev 0

R-2744291H-007, Plant Hatch Annual Meteorological Report 2017, Rev 0

Work Order (W/O) # SNC793044, 57IT-Y33-001-0, Climatronic Instruments Calibration, 06/12/2017

W/O # SNC812349, Yard Structures Meteorological, 03/16/2017

W/O # SNC831764, 57IT-Y33-001-0, Climatronic Instruments Calibration, 12/20/2017

2016 and 2017 Annual Radiological Environmental Operating Report

#### Corrective Action Program (CAP) Documents

CAR 262630

CR 10181436

CR 10233673

CR 10340817

CR 10427749

CR 10431394

CR 10434336

CR 10459149

CR 10461270

CR 10476929

CR 10494018

CR 10505088

NMP-GM-002, Corrective Action Program, Ver. 14.1

NMP-GM-002-001, Corrective Action Program Instructions, Ver. 36.2

#### **71151: Performance Indicator Verification**

##### Procedures:

NMP-AD-029, Preparation and Reporting of Regulatory Assessment Performance Indicator Data and the Monthly Operating Report, Ver. 1.1

NMP-DP-001-GL01, Risk Assessment Worksheets, Ver. 11.1

NMP-HP-206, Issuance, Use, and Control of Radiation Work Permits, Ver. 4.3

##### Documents:

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 7.0

##### Records and Data

Gamma Spectrum Analysis Report 27Feb18-007, Main Stack Particulate, 02/27/2018

Gamma Spectrum Analysis Report 27Feb18-002, Main Stack Charcoal, 02/27/2018

Gamma Spectrum Analysis Report 28Feb18-004, U2 RBV Particulate, 02/28/2018

Gamma Spectrum Analysis Report 28Feb18-005, U2 RBV Charcoal, 02/28/2018

Gaseous Release Permit G-20180220-030-C, Main Stack, 02/27/2018

Gaseous Release Permit G-20180221-032-C, Reactor Building Vent, Unit One, 02/28/2018

Hatch Key Performance Indicators, January 2017 through February 2018

Liquid Release Permit L-20180217-021-B, Waste Sample Tank B, Unit One, 02/18/2018

ALARA Briefing Sheet - Replacement of the Transfer Canal Gate Seal, 03/14/2018

Electronic Dosimeter Dose and Dose Rate Alarms, February 2017 to March 2018

Hatch Key Performance Indicators - February 2017 to February 2018, 03/19/2018

Self-Assessment High, Locked and Very High Radiation Area Access Control, 08/03/2017

Survey #155733, Plant Hatch RF Cask Pit (2RX228), 03/04/2018

Survey #155728, Plant Hatch RF Cask Pit (2RX228), 03/04/2018

CAP Documents

CAR 272541  
CR 02197169  
CR 02204181  
CAR 272541  
CR 10324140  
CR 10328406  
CR 10333129  
CR 10439725  
CR 10461882  
CR 10472292

**71152: Problem Identification and Resolution**

Procedures:

34AB-C11-004-2S, Mispositioned Control Rods, Version 4.3  
34GO-OPS-065-0, Control Rod Movement, Version 14.0  
NMP-ES-021, Structural Monitoring Program for the Maintenance Rule, Ver. 10.0  
NMP-GM-002, Corrective Action Program, Version 14.4

Documents:

SNC-843238-01, Hatch Unit 2 Structural Maintenance Inspection Report 2017

Condition Reports (\*NRC Identified):

10238732	10319598	10328432	10458271	10485050	10486201
*10486751	10489906	10490691	10490702	*10496723	10492356
10493675	10493676	10493682	10493836	10495981	10498306
*10505037	10505214	2001000891			

**71153: Follow-up of Events and Notices of Enforcement Discretion**

Documents:

0380-0042-MO-01, U1 MOVs in Pressure Boundary Evaluation Scope Calculation, Rev. 2  
0380-0042-MO-02, U2 MOVs in Pressure Boundary Evaluation Scope Calculation, Rev. 2  
Information Notice No. 92-18, Potential for Loss of Remote Shutdown Capability During a  
Control Room Fire, February 28, 1992  
RBA-18-002-H, IN 92-18 VALVE RISK ASSESSMENT, March 21, 2018  
RBA-18-003-H, IN 92-18 VALVE RISK ASSESSMENT UPDATE, April 11, 2018