



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

January 31, 2017

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
05000321/2016004 AND 05000366/2016004**

Dear Mr. Vineyard:

On December 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Edwin I. Hatch Nuclear Plant, Units 1 and 2. On January 27, 2017, 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 one finding of very low safety significance (Green) in this report which also involved a violation of NRC requirements. If you contest the violation or significance of the NCV, 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 the Hatch Nuclear Plant.

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 the Hatch Nuclear Plant.

D. Vineyard

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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 R. Sandal, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 05000321, 05000366
License Nos.: DPR-57, NPF-5

Enclosure:
IR 05000321/2016004, 05000366/2016004
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Letter to David R. Vineyard from Shane R. Sandal dated January 31, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-321, 50-366

License Nos.: DPR-57 and NPF-5

Report No.: 05000321/2016004; and 05000366/2016004

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Edwin I. Hatch Nuclear Plant

Location: Baxley, Georgia

Dates: October 1, 2016 through December 31, 2016

Inspectors: D. Hardage, Senior Resident Inspector
D. Retterer, Resident Inspector
B. Caballero, Senior Operations Engineer (1R11)
S. Sanchez, Senior Emergency Preparedness Inspector (1EP2,
1EP3, 1EP4, 1EP5, 4OA1)
J. Hickman, Emergency Preparedness Inspector (1EP2, 1EP3,
1EP4, 1EP5, 4OA1)

Approved by: Shane R. Sandal, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000321/2016004; and 05000366/2016004; October 1, 2016, through December 31, 2016; Edwin I. Hatch Nuclear Plant, Units 1 and 2; Operability Determinations and Functionality Assessments

The report covered a 3-month period of inspection by resident and regional inspectors. There was one NRC-identified violation 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, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated November 1, 2016. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6. Documents reviewed by the inspectors, not identified in the Report Details, are identified in the List of Documents Reviewed section of the Attachment.

Cornerstone: Mitigating Systems

- Green. An NRC-identified non-cited violation (NCV) of Hatch Unit 1 Technical Specification 5.4, "Procedures," was identified when procedures did not include inspection criteria for ice buildup of the Unit 1 nitrogen storage tank piping. The licensee's failure to establish controls to ensure that ice buildup on the Unit 1 Containment Atmospheric Dilution (CAD) subsystem piping did not exceed ten inches was a performance deficiency. The licensee entered the condition into their corrective action plan as CR10296584, and performed de-icing activities to remove the ice buildup.

This performance deficiency was more than minor, because ice buildup on the CAD system may lead to CAD subsystem inoperability if left uncorrected. The finding screened as Green because the CAD subsystem remained operable. The inspectors determined that this finding had a cross-cutting aspect in the 'Initiation' aspect of the problem identification and resolution area, because the licensee did not initiate a condition report upon initially identifying the issue. [P.1] (Section 1R15)

REPORT DETAILS

Summary of Plant Status

Unit 1: Unit 1 began the inspection period at or near 100 percent rated thermal power (RTP). On November 22, unit power was briefly reduced to 60 percent RTP to swap steam jet air ejectors. The unit was returned to 100 percent RTP and operated at or near 100 percent RTP through the remainder of the inspection period.

Unit 2: Unit 2 began the inspection period at 100 percent rated thermal power (RTP). On December 9, the unit entered end-of-cycle coast down and remained in coast down throughout 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

Seasonal Extreme Weather Conditions: The inspectors conducted a detailed review of the station's adverse weather procedures for extreme low temperatures. The inspectors verified that weather-related equipment deficiencies identified during the previous year had been placed into the work control process and/or corrected before the onset of seasonal extremes. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures before the onset of seasonal extreme weather conditions. The inspectors evaluated the following risk-significant systems:

- Unit 1 intake area
- Unit 2 intake area

Impending Adverse Weather Conditions: The inspectors reviewed the licensee's preparations to protect risk-significant systems from Hurricane Matthew expected October 7, 2016. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of the adverse weather conditions. The inspectors reviewed the licensee's plans to address the ramifications of potentially lasting effects that may result from hurricane conditions. The inspectors verified that operator actions specified in the licensee's adverse weather procedure maintain readiness of essential systems. The inspectors verified that required surveillances were current, or were scheduled and completed, if practical, before the onset of anticipated adverse weather conditions. The inspectors also verified that the licensee implemented periodic equipment walkdowns or other measures to ensure that the condition of plant equipment met operability requirements.

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 systems were correctly aligned by performing partial walkdowns. The inspectors determined the correct system lineup by reviewing plant procedures and drawings listed in the Attachment.

- Unit 1 “B” emergency diesel generator alignment to Unit 2 during the Unit 2 “A” emergency diesel generator planned system maintenance outage
- Unit 2 “B” train RHR while the opposite train was out of service for planned system maintenance outage
- Unit 2 reactor core isolation cooling system while high pressure coolant injection was out of service for a planned maintenance outage
- Unit 1 “A” and “C” emergency diesel generator while the “B” emergency diesel generator was out of service for inspection of the flexible drive gear assembly.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)a. Inspection Scope

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

- Unit 1 & 2, service water valve pits, fire zones 1602, 1602, 2601, and 2602
- Unit 2, reactor building elevation 203 working floor and stack monitoring room, fire zones 2205X and 2205Y
- Unit 1 & 2, condensate storage tank area, fire zones 1603 and 2603
- Unit 1, railroad airlock, fire zone 1604
- Unit 2, EDG Switchgear Rooms, fire zones 2404, 2408 and 2409

The inspectors assessed the following:

- 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
- material condition and operational status of fire protection equipment

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

Underground Cables: The inspectors reviewed related flood analysis documents and inspected the areas listed below containing cables whose failure could disable risk-significant equipment. The inspector directly observed the condition of cables and cable support structures and, as applicable, verified that dewatering devices and drainage systems were functioning properly. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program.

- Unit 1, PB1-DO
- Unit 1, PB1-DP

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 classroom training of an operating crew for an upcoming refueling outage.

Resident Inspector Quarterly Review of Licensed Operator Performance: The inspectors observed licensed operator performance in the main control room during an emergent down power to 60 percent RTP due to a malfunctioning steam jet air ejector.

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

Annual Review of Licensee Requalification Examination Results: On December 7, 2016, the licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the Code of Federal Regulations 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the three 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.

- Unit 1, Main Condenser tube leak
- Unit 1, Diesel Emergency Power, Cross drive replacements - quality control verifications were properly specified and were implemented as specified.
- Unit 1, Generator stator cooling inlet filter high differential pressure

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.

- Unit 1 and 2, October 2 – October 9, 2016 including 2A EDG planned maintenance outage and preparation for Hurricane Matthew.
- Unit 1 and 2, October 23 – October 30, 2016 including 1A plant service water pump, 2C residual heat removal pump, and 2A standby gas treatment system planned maintenance outages.
- Unit 2, November 6 – November 13, 2016 including Unit 2 HPCI planned maintenance outage.
- Unit 1 and 2, November 27 – December 3, 2016, including 1A and 1B EDG flexible drive inspections and emergent replacement of the 1A EDG flexible drive assembly.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

Operability Determinations and Functionality Assessments Review: The inspectors selected the five 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.

- CR 10287561 Thru wall plant service water leak near valve 2P41F1176
- CR 10293453 PSW tornado missile protection vulnerability
- CR 10296368 Icing buildup on nitrogen storage tanks
- CR 10308478 Drywell High Press ATTS card 2E11-N694D gross fail indication
- CR 10310460 2A EDG Pilot line air flange bolting loose

b. Findings

Introduction: An NRC-identified Green NCV of Hatch Unit 1 Technical Specification 5.4, "Procedures," was identified on November 8, 2016, when procedures did not include inspection criteria for ice buildup of the Unit 1 nitrogen storage tank piping.

Description: On November 8, 2016, the inspectors identified ice buildup of eight inches in diameter on the Unit 1 nitrogen storage tank piping and six inches on the Unit 2 piping to the ambient vaporizer. The licensee determined the Unit 2 containment atmospheric dilution (CAD) subsystem was operable. However, the licensee did not initiate a condition report or perform an operability determination for Unit 1. On November 14, 2016, inspectors identified an accumulation of ice on the Unit 1 nitrogen storage tank piping of approximately ten inches. The licensee entered the issue into the corrective action program and performed de-icing activities. The licensee determined the Unit 1 subsystem was operable.

Procedure 34SO-T48-002, "Containment Atmospheric Control and Dilution Systems," stated "Ice formation on the piping at the Nitrogen Storage Tank greater than ten inches will cause excess stress on the piping and per engineering will require periodic de-icing." The limitation on CAD system piping icing ensures piping/ice interactions during a postulated seismic event do not result in loss of function. However, only Unit 2 operator rounds procedure OPS-1822, "U2 Inside Rounds Reactor BLDG," contained the guidance to confirm ice buildup less than eight inches and provided direction to declare the CAD subsystem inoperable if buildup was greater than ten inches in diameter. The licensee had not established similar controls for Unit 1 to ensure that de-icing activities would occur prior to buildup greater than ten inches for the Unit 1 CAD system. On November 9, 2016, the licensee entered the lack of icing inspections and limitations for Unit 1 into the corrective action program.

Analysis: The failure to establish controls to ensure that ice buildup on the Unit 1 CAD subsystem piping did not exceed ten inches was a performance deficiency. This performance deficiency was more-than-minor, because ice buildup on the CAD system may lead to CAD subsystem inoperability if left uncorrected. The inspectors screened this finding using IMC 0609, Appendix A, "The Significant Determination Process (SDP) For Findings At-Power", dated June 19, 2012. The finding screened as Green per Section A of Exhibit 2, "Mitigating Systems Screening Questions," because the CAD subsystem remained operable. The inspectors determined that this finding had a cross-cutting aspect in the 'Initiation' aspect of the problem identification and resolution area, because the licensee did not initiate a condition report upon initially identifying the issue. [P.1]

Enforcement: Hatch Unit 1 Technical Specification 5.4.1 required, in part, that procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 1.h required, in part, that log entries be established for the operation of safety-related activities. Contrary to the above, the licensee did not establish log entry requirements for the operation of the Unit 1 CAD subsystem. Specifically, log entry requirements were not established in the Unit 1

operator rounds procedure to ensure that the buildup of excessive ice on the nitrogen storage tank piping would not occur. The condition existed from November 8, 2016 until November 14, 2016. The condition was entered into the licensee's corrective action program as CR10296584. This violation was treated as an NCV, consistent with the Enforcement Policy: NCV 05000321/2016004-01; "Failure to Establish Icing Controls on CAD Subsystem."

1R18 Plant Modifications (71111.18)

a. Inspection Scope

For plant modification SNC539300, Unit 1 Reliable Hardened Containment Vent Design, the inspectors:

- verified that the modifications did not affect the safety functions of important safety systems.
- confirmed the modifications did not degrade the design bases, licensing bases, and performance capability of risk significant structures, systems and components.
- verified modifications performed during plant configurations involving increased risk did not place the plant in an unsafe condition.
- 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.
- reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modifications.

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 six 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.

- SNC 520109, 2D RHR pump meggar and oil change, October 12, 2016
- SNC 778365, HCU 1807 scram valve diaphragm replacement, October 22, 2016
- SNC 457072, 2C RHR pump meggar and oil change, October 25, 2016
- SNC 781254, Adjust Packing on MOV 1E21F004B, November 16, 2016
- SNC 812013, Perform inspection and repair/replace 1B EDG crossdrive assembly, November 28, 2016
- SNC 832959, 2E11N694D gross fail indication, December 15, 2016

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.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the four surveillance tests listed below. The surveillance test was either observed directly or test results were reviewed to verify testing activities and results provide objective evidence that the affected equipment remain capable of performing their intended safety functions and maintain their operational readiness consistent with the facility's current licensing basis. The inspectors evaluated the test activities to assess for:

- preconditioning of equipment,
- appropriate acceptance criteria,
- calibration and appropriateness of measuring and test equipment,
- procedure adherence, and
- equipment alignment following completion of the surveillance.

Additionally, the inspectors reviewed a sample of significant surveillance testing problems documented in the licensee's corrective action program to verify the licensee was identifying and correcting any testing problems associated with surveillance testing.

Routine Surveillance Tests

- 34SV-E41-002-1, "HPCI Pump Operability," Ver. 31.5
- 34SV-T22-001-0, "Secondary Containment Test," Ver. 17.0
- 34SV-R43-006-1, "Diesel Generator 1C Semi-Annual Test," Ver. 14.1
- 34SV-R43-001-1, "Diesel Generator 1A Monthly Test," Ver. 24.3

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02)

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing and maintaining the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, Alert and Notification System Evaluation. The applicable planning standard, 10 CFR Part 50.47 (b) (5), and its related 10 CFR Part 50, Appendix E requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, were also used as a reference.

The inspectors reviewed various documents which are listed in the Attachment and interviewed personnel responsible for system performance. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03)

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, Emergency Response Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b) (2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

Since the last NRC inspection of this program area, one change was made to the Radiological Emergency Plan and two changes were made to the emergency action levels, along with changes to several implementing procedures. The licensee determined that, in accordance with 10 CFR 50.54(q), the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors reviewed these changes to evaluate for potential reductions in the effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, Emergency Action Level and Emergency Plan Changes. The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E were used as reference criteria. The inspectors reviewed various documents that are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (71114.05)

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected screenings and evaluations to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors evaluated the capabilities of selected radiation monitoring instrumentation to adequately support Emergency Action Level (EAL) declarations.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, and Maintenance of Emergency Preparedness. The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria. The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on October 12, 2016. The inspectors observed licensee activities in the simulator and/or technical support center to evaluate implementation of the emergency plan, including event classification, notification, dose assessment, 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.

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 October 2015 and October 2016 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.

Cornerstone: Mitigating Systems

- safety system functional failures

- heat removal system
- cooling water system

The inspectors sampled licensee submittals relative to the PIs listed below for the period October 1, 2015, through September 30, 2016. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used to confirm the reporting basis for each data element.

Cornerstone: Emergency Preparedness

- Drill/Exercise Performance (DEP)
- Emergency Response Organization (ERO) Readiness
- Alert and Notification System (ANS) Reliability

For the specified review period, the inspectors examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment. This inspection satisfied three inspection samples for PI verification on an annual basis.

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 follow-up. The inspectors reviewed condition reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors reviewed issues entered in the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more

significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of inspector daily condition report screenings, licensee trending efforts, and licensee human performance results. The review nominally considered the 6-month period of July 2016 thru December 2016 although some examples extended beyond those dates when the scope of the trend warranted. The inspectors compared their results with the licensee's analysis of trends. Additionally, the inspectors reviewed the adequacy of corrective actions associated with a sample of the issues identified in the licensee's trend reports. The inspectors also reviewed corrective action documents that were processed by the licensee to identify potential adverse trends in the condition of structures, systems, and/or components as evidenced by acceptance of long-standing non-conforming or degraded conditions.

b. Findings and Observations

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of condition report 10299111, B HVAC Unit Tripping Trend Identified.

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

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On January 27, 2017, 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Anderson, Radiation Protection Manager
J. Bailey, Licensing Engineer
H. Betsill, Emergency Preparedness Specialist
G. Brinson, Maintenance Director
D. Coffin, Corporate Emergency Preparedness Manager
J. Collins, Licensing Supervisor
B. Deen, Training Director
B. Duvall, Chemistry Manager
B. Hulett, Engineering Director
G. Johnson, Regulatory Affairs Manager
R. Lewis, Operations Support Manager
K. Long, Operations Director
A. Manning, Work Management Director
L. Mansfield, Fleet Emergency Preparedness Director
J. Merritt, Security Manager
D. Moore, Emergency Preparedness Specialist
R. Outler, Emergency Preparedness Supervisor
C. Rush, Nuclear Oversight Manager
R. Spring, Plant Manager
D. Vineyard, Site Vice President
B. Wainwright, Operations Training Manager

LIST OF REPORT ITEMS

Opened and Closed

NCV 05000321/2016004-01, Failure to Establish Icing Controls on CAD Subsystem
(Section 1R15)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather

Procedures

NMP-OS-017, "Severe Weather," Ver. 1.1
52PM-MEL-005-0, "Cold Weather Checks," Ver. 18.0

Other

SNC731270

Section 1R04: Equipment Alignment

Procedures

34SO-E11-010-2, "Residual Heat Removal System," Ver. 42.9
34SO-E51-001-2, "Reactor Core Isolation Cooling System," Ver. 27.0
34SO-R43-001-1, "Diesel Generator Standby AC System," Ver. 27.4

Section 1R05: Fire Protection**Procedures**

E.I. Hatch Fire Protection Fire Hazards Analysis

52SV-FPX-001-0, "Fire Extinguisher Inspection," Ver. 3.4

42SV-FPX-024-0, "Fire Hose Stations Appendix B Areas," Ver. 4.1

Drawings

A-43965 sheet 121A/B, Unit 2 Pre-Fire Plan Stack Monitoring Room Reactor Building Elevation 203'

A-43965 sheet 122A/B, Unit 2 Pre-Fire Plan Working Floor Reactor Building Elevation 203'

A-43966 sheet 48A/B, Unit 1 Pre-Fire Plan Service Water Valve Pit 1A

A-43966 sheet 49A/B, Unit 1 Pre-Fire Plan Service Water Valve Pit 1B

A-43966 sheet 50A/B, Unit 2 Pre-Fire Plan Service Water Valve Pit 2A

A-43966 sheet 51A/B, Unit 2 Pre-Fire Plan Service Water Valve Pit 2B

A-43966 sheet 43A/B, Unit 1 Pre-Fire Plan Condensate Storage Tank

A-43966 sheet 44A/B, Unit 2 Pre-Fire Plan Condensate Storage Tank

A-43966 sheet 41A/B, Unit 1 Pre-Fire Plan Railroad Airlock

A-43966 sheet 21A/B, Unit 2 2E EDG Switchgear

A-43966 sheet 25A/B, Unit 2 2F EDG Switchgear

A-43966 sheet 26A/B, Unit 2 2G EDG Switchgear

Section 1R06: Internal Flood Protection**Documents**

HNP-2-FSAR Chapter 9.3.3.2.2.B

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

Section 1R11: Licensed Operator Regualification

34SO-N61-001-1, "Main Condenser Vacuum System and Closeout," Ver. 25.0

34GO-OPS-065-0, "Control Rod Movement," Ver. 13.0

34SO-B31-001-1, "Reactor Recirculation System," Ver. 46.6

34GO-OPS-005-1, "Power Changes," Ver. 28.1

Section 1R12: Maintenance Effectiveness

R43 Maintenance Rule (MR) Scoping Manual Documents

R43 MR Performance Criteria

System Health Report – R43 System

N61 Maintenance Rule (MR) Scoping Manual Documents

N61 MR Performance Criteria

System Health Report – N61 System

NMP-ES-002, "System Monitoring and Health Reporting," Ver. 20.1

N40 MR Performance Criteria

System Health Report – N40 System

CRs 10279471, 10132956

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Equipment out of Service calculations 10/2/16-10/15/16

Equipment out of Service calculations 10/16/16-10/29/16

Equipment out of Service calculations 11/6/16-11/13/16

Equipment out of Service calculations 11/27/16-12/11/16

NMP-OS-010-002, "Hatch Protected Equipment Logs," Ver. 10.13
 NMP-GM-031, "On-line Configuration Risk Management Program," Ver. 3.0

Section 1R15: Operability Evaluations

NMP-AD-012, "Operability Determinations and Functional Assessments," Ver. 13.0
 HNP-2-FSAR
 ASME Code Case N-513-3
 57SV-SUV-012-2, "ATTS Panel 2H11-P926 Channel FT&C," Ver. 21.0
 57CP-CAL-102-2, "Analog Master/Slave Trip Unit Calibration," Ver. 16.7

Section 1R18: Plant Modifications

NMP-ES-084, "Design Control/Configuration Management Process," Ver. 4.0
 NMP-ES-084-004-F1, "Equivalent Change Form," Ver. 1.1
 SNC539300, Unit 1 Reliable Hardened Containment Vent Design

Section 1R19: Post Maintenance Testing

NMP-MA-014-001, "Post Maintenance Testing Guidance," Ver. 4.2
 42SV-C11-003-0, "Control Rod Scram Testing," Ver. 10.0
 NMP-MA-020-002, "Actuated Valve Packing and Adjustment Procedure," Ver. 2.0
 52SV-R43-001-0, "Diesel, Alternator, and Accessories Inspection," Ver. 28.1
 34SV-R43-005-1, "Diesel Generator 1B Semi-Annual Test," Ver.17.1
 57SV-SUV-012-2, "ATTS Panel 2H11-P926 Channel FT&C," Ver. 21.0

Section 1EP2: Alert and Notification System Evaluation

Procedures and Reports

73EP-ADM-001-0, Maintaining Emergency Preparedness, Ver. 7.0
 Hatch Nuclear Plant Unit 1 and Unit 2 Emergency Plan, Rev. 39
 NMP-EP-308, SNC Emergency Alert Siren Operation, Testing and Maintenance, Ver. 2.0
 NMP-GM-002-001, Corrective Action Program Instructions, Ver. 34.0

Records and Data

Weekly siren test results, October 1, 2015 – October 31, 2016
 Annual siren test results, dated 10/11/16
 2015 and 2016 Hatch Nuclear Plant Emergency Planning Calendar mailer to members of the public in the 10-mile EPZ
 Reverse 911/Code Red testing results, dated 12/15/15
 Edwin I. Hatch Nuclear Plant Alert and Notification System Design Report, dated March 2013
 Plant Hatch Emergency Outdoor Warning System Operator Guide, dated 3/28/12

Corrective Action Documents (Condition Reports)

00889077, Siren station connection between Toombs County and GEMA is not functional
 10004623, Siren 28 batteries are depleted
 10096613, UHF and VHF obsolescence on ANS sirens
 10102904, Potential trend for outdoor siren component failures in 2015
 10153276, ANS siren 59 controller failure
 10153291, Siren VHF repeater is not working
 10173670, EP Siren frequency issue
 10241982, Investigate failures for potential trend

10250339, Siren 65 damaged due to vehicle
 10253104, Counties not adequately testing Code Red to align with ANS design report
 10302925, ANS Performance Indicator Submission
 10303789, Opportunity for ANS improvement noted from Hatch NRC Inspection

Section 1EP3: Emergency Response Organization Staffing and Augmentation System Procedures

73EP-EIP-062-0, Operations Support Center Activation, Ver. 7.5
 73EP-EIP-063-0, Technical Support System Activation, Ver. 13.0
 75TR-TRN-001-0, Emergency Preparedness Training, Ver. 11.0
 Hatch Nuclear Plant Unit 1 and Unit 2 Emergency Plan, Rev. 39
 NMP-EP-135, Alternative Facility Setup and Operation, Ver. 2.0
 NMP-EP-301, EOF Emergency Response Organization and EP Staff Training, Ver. 8.1
 NMP-EP-303, Drill and Exercise Standards, Ver. 17.0
 NMP-GM-002-001, Corrective Action Program Instructions, Ver. 34.0
 NMP-TR-480, Emergency Response Organization (ERO) Training and Qualifications, Ver. 1.1

Records and Data

ERO augmentation drill records 2015/2016
 Emergency Response Organization current roster
 Selected employee training records
 Edwin I. Hatch Nuclear Plant On-Shift Staffing Analysis Report, Rev. 1

Corrective Action Documents

00890614, Minimum staffing requirements per NEI 10-05 for OSA
 00890713, Drill participation credited to the wrong ERO position
 00891254, Dayshift below 11 covered personnel
 00903532, Update needed to the emergency call list
 10004829, Minimum Crew Staffing below administrative requirements
 10017677, NRC Integrated Inspection Report-Green LIV staffing analysis gap
 10068321, Shift falls below EP staffing, TS/FB requirements met
 10129656, RP team "B" staffed with 3 techs instead of 4
 10133871 Communicator NXT primary number out of service
 10177307, Emergency callout drill, TSC Dose Assessment > 60 minutes
 10148905, Operations minimum staffing no met at the beginning of the shift
 10223476, OPS Night shift below minimum staffing
 10225628, Trend in call-out drill response
 10245777, Operations staffing level below minimum
 10292176, Minimum crew manning not met
 10303927, Ops Minimum Staffing Issue

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures

NMP-EP-110-GL02, HNP Emergency Action Levels – Initiating Conditions, Threshold Values, and Basics, Ver. 5.0 & 5.1
 NMP-EP-310, Maintaining the Emergency Plan, Ver. 4.1
 NMP-GM-002, Corrective Action Program, Ver. 13.2
 NMP-GM-002-001, Corrective Action Program Instructions, Ver. 34.0

Hatch Nuclear Plant Unit 1 and Unit 2 Emergency Plan, Rev. 38 & 39

Change Packages

HNP-16-004-01, 10 CFR 50.54(q) Screening/Evaluation for NMP-EP-110-GL02 Ver. 5.0, dated 2/25/16
 HNP-16-009, 10 CFR 50.54(q) Screening/Evaluation for Emergency Plan Ver. 39, dated 4/20/16
 HNP-16-011-01, 10 CFR 50.54(q) Screening/Evaluation for 73EP-EIP-009-0 Ver. 12.0, dated 5/25/16
 HNP-16-012-01, 10 CFR 50.54(q) Screening/Evaluation for NMP-EP-110-GL02 Ver. 5.1, dated 12/1/16
 FLT-15-001-01, 10 CFR 50.54(q) Screening/Evaluation for NMP-EP-111, -F13, & -F15 Ver. 10.0, 2.0, & 1.1, dated 2/3/15

Corrective Action Documents

00893670, Hatch E-Plan commitment tracking CR
 00897686, EAL value changes due to reconstitution of the EAL calculation
 10045321, Change required for EAL SG 2.2a threshold value subsequent to recent EOP changes
 10091342, EAL scheme discrepancy
 10303136, 50.54(q) screening not documented

Section 1EP5: Maintenance of Emergency Preparedness

Procedures

73EP-EIP-009-0, Nuclear Security Duties, Ver. 11 & 12
 73EP-EIP-016-0, TSC HVAC Operation, Ver. 5.5
 73EP-EIP-020-0, Offsite Environmental Monitoring During Emergencies, Ver. 3.4
 73EP-EIP-021-0, Alternate OSC Activation, Ver. 1.4
 NMP-EP-101, Emergency Operations Facility (EOF) Activation, Ver. 4.0
 NMP-EP-110, Emergency Classification Determination and Initial Action, Ver. 8.1
 NMP-EP-111, Emergency Notifications, Ver. 11.0
 NMP-EP-135, Alternative Facility Setup & Operation, Ver. 2.0
 NMP-EP-135, Alternative Facility Setup & Operation, Ver. 2.0
 NMP-EP-303, Drills and Exercise Standards, Ver. 17.0
 NMP-EP-305, Equipment Important to Emergency Response, Ver. 3.0
 NMP-EP-310, Maintaining the Emergency Plan, Ver. 4.1
 NMP-EP-310-F01, 10 CFR 50.54(q) Screening / Evaluation, Ver. 2.1
 NMP-GM-002, Corrective Action Program, Ver. 13.2
 NMP-GM-002-001, Corrective Action Program Instructions, Ver. 34.0
 NMP-GM-003, Self-Assessment and Benchmark Procedure, Ver. 23.1
 NOS-104-001-F05, EP Audit Planning Guide, Ver. 1.1
 Hatch Nuclear Plant Unit 1 and Unit 2 Emergency Plan, Rev. 39

Records and Data

73EP-INS-001-0, OSC Emergency Equipment Inventory, dated 10/17/16
 73EP-INS-001-0, Additional Locations Emergency Equipment Inventory, dated 10/17/16
 73EP-INS-001-0, Field Monitoring Team Emergency Kit & Equipment Inventory, dated 10/17/16
 73EP-INS-001-0, Simulator Building Emergency Equipment Inventory, dated 10/17/16
 73EP-INS-001-0, TSC Emergency Equipment Inventory, dated 10/17/16
 2014 EP Exercise 03 Report
 2015 EP Exercise 01, 03, and 04 Reports
 2016 EP Exercise 01 and 02 Reports
 Apparent Cause Determination Report for CR 10057105, dated 6/10/15
 Check-In Self-Assessment Plan & Report, dated 8/14/15
 Check-In Self-Assessment Plan & Report, dated 7/26/16
 Edwin I. Hatch Nuclear Plant Annual Population Update – 2015, dated 11/29/15
 Edwin I. Hatch Nuclear Plant Annual Population Update – 2016, dated 11/2/16
 NMP-GM-002-F31, Human Performance Checklist, dated 5/17/15
 NOS Audit of EP, Logs: Fleet-EP-2015, dated 3/23/15
 NOS Audit of EP, Logs: Fleet-EP-2016, dated 2/18/16
 Work Order SNC774503, Hi-Hi set-point change of U1 1D11-K630 iodine channel
 Work Order SNC799104, Drywell Wide Range RIS erratic and spiking

Corrective Action Documents

00892972, Equipment important to EP discrepancies
 10017679, NRC integrated inspection report – Green LIV – EAL threshold
 10057105, Drill 2015EX01 drill objective not met
 10058231, Discrepancy between historical Hatch E-Plan on-shift staffing & current on-shift staffing levels
 10058233, Historic documentation of Hatch E-Plan
 10156214, A drill message inject was provided that impacted determination of a GE declaration
 10156217, 15EX04 drill results
 TE 964817, EP Check-In Self-Assessment recommendation #3

Section 1EP6: Drill Evaluation

EP Exercise Narrative and Timeline for drill conducted October 12, 2016
 Drill event notification forms from drill conducted October 12, 2016

Section 40A1: Performance Indicator Verification

NMP-AD-029, "Preparation and Reporting of NRC PI Data," Ver. 1.0
 00AC-REG-005-0, Preparation and Reporting of NR Performance Indicator Data, Ver. 8.0
 NMP-EP-311, SNC Emergency Preparedness Tier 4 Performance Indicators, Ver. 2.0
 NMP-GM-002, Corrective Action Program, Ver. 14.0
 Hatch Nuclear Plant Unit 1 and Unit 2 Emergency Plan, Rev. 39
 NMP-GM-002-001, Corrective Action Program Instructions, Ver. 34.0

Records and Data

DEP opportunities documentation for 4th quarter 2015; 1st, 2nd, and 3rd quarters 2016
 Siren test data for 4th quarter 2015; 1st, 2nd, and 3rd quarters 2016
 Drill and exercise participation records of ERO personnel for 4th quarter 2015; 1st, 2nd, and 3rd quarters 2016

MSPI Derivation Report, October 2015 - October 2016

Corrective Action Documents

00890710, DEP PI data on NRC home page does not match 1st quarter data
10011851, ERO team member not included in NRC PI data
10041950, Incorrect EP KPI data being sent to the NRC
10052135, Failure to complete a timely classification in accordance with NEI 99-01
10074737, During an as-found evaluation, failure to properly classify plant emergency per NMP-EP-110
10190828, NRC Performance Indicator revision
10263795, Siren 80 did not respond to silent test
10288044, Siren 47 VHF failure

Section 40A2: Identification and Resolution of Problems

NMP-GM-002, "Corrective Action Program," Ver. 14.0
52PM-Z41-001-1, "Control Room Air Conditioning System Maintenance," Ver. 18.0
DCP1019001801, "MCR HVAC Water Regulation Valve"
S-56349, "Metrex Flow Regulator Valve"

Condition Reports

10253789, 10242898, 10112908, 10298179, 10288884, 10282059, 10270476, 10230838,
10217777, 10297935, 10309056