



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

November 14, 2017

EA-17-131
EA-17-188

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 05000321/2017003 AND 05000366/2017003: AND EXERCISE OF
ENFORCEMENT DISCRETION**

Dear Mr. Vineyard:

On September 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Edwin I. Hatch Nuclear Plant Units 1 and 2. On October 26, 2017, the NRC inspectors discussed the results of this inspection with Tony 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 involved a violation of NRC requirements. The NRC is treating this violation as non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy. If you contest the violation or significance of this 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; and the NRC resident inspector at the Hatch Nuclear Plant.

In addition, there were two violations for which the NRC will exercise enforcement discretion. First, a violation of Technical Specifications (TS) Limiting Conditions for Operation (LCO) 3.8.1 was identified because the emergency diesel generator fuel oil storage tank vents were not adequately protected from tornado-generated missiles. Inspectors verified compliance with the measures described in Enforcement Guidance Memorandum (EGM) 15-002, "Enforcement Discretion for Tornado-Generated Missile Protection Non-Compliance," and interim staff guidance DSS-ISG-2016-01, "Clarification of Licensee Actions in Receipt of Enforcement Discretion per Enforcement Guidance Memorandum EGM 15-002." The inspectors concluded that the violation would normally be characterized as a Severity Level IV violation because it

was of very low safety significance (Green). Because the violation was identified during the discretion period described in EGM 15-002, the NRC is exercising enforcement discretion (EA-17-131) in accordance with Section 3.5, "Violations Involving Special Circumstances," of the NRC Enforcement Policy and, therefore, will not issue enforcement action for this violation.

Second, a violation of TS 5.5.12 was identified because two primary containment isolation valves, in the Unit 2 drywell vent line containment penetration, were found to have seat leakage that exceeded the maximum allowable primary containment leakage rate. This degraded condition was identified during required 10 CFR 50, Appendix J, leak testing during the February 2017 refueling outage and reported to the NRC in Licensee Event Report 05000366/2017-003-00. The inspectors concluded that the violation would normally be characterized as a Severity Level IV violation. However, the inspectors reviewed the cause determination report for the event and historical valve performance data and concluded that the equipment failure could not have been avoided or detected by your quality assurance program or other related control measures. Specifically, there were no indications available to operators that the subject penetration was leaking during the previous operating cycle and there were no deficiencies identified with prior valve maintenance and testing. The inspectors reviewed failure history on Units 1 and 2, licensee previous corrective actions, and vendor recommended practices and, based on this, a performance deficiency was not identified. Therefore, in accordance with Section 3.10, "Reactor Violations With No Performance Deficiency," of the Enforcement Policy, the NRC is exercising enforcement discretion (EA-17-188) and will not issue a violation for this matter.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Joel T. Munday, Director
Division of Reactor Projects

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

Enclosures:
IR 05000321/2017003 and 05000366/2017003
w/Attachment: Supplemental Information

D. Vineyard

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SUBJECT: EDWIN I. HATCH NUCLEAR PLANT – NRC INTEGRATED INSPECTION
REPORT 05000321/2017003 AND 05000366/2017003: AND EXERCISE OF
ENFORCEMENT DISCRETION November 14, 2017

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-321, 50-366

License Nos.: DPR-57, NPF-5

Report No.: 05000321/2017003; and 05000366/2017003

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Edwin I. Hatch Nuclear Plant

Location: Baxley, Georgia

Dates: July 1 through September 30, 2017

Inspectors: D. Hardage, Senior Resident Inspector
A. Ruh, Senior Resident Inspector
D. Retterer, Resident Inspector

Approved by: Joel T. Munday, Director
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000321/2017003; and 05000366/2017003, July 1, 2017, through September 30, 2017; Edwin I. Hatch, Units 1 and 2, Plant Modifications, Follow-up of Events and Notices of Enforcement Discretion

The report covered a 3-month period of inspection by resident inspectors. There is 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 which are 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 10 CFR 50, Appendix B, Criterion III, "Design Control" was identified for failure to translate regulatory requirements and the design basis of the scram discharge volume (SDV) thermal probes into the System Evaluation Document, which resulted in the installation of a nonsafety-related terminal board in the reactor protection system (RPS). As an immediate corrective action the licensee installed fully qualified equipment. The failure to classify reactor protection system components as safety-related in accordance with design documents was a performance deficiency. The violation was entered into the licensee's corrective action program as CR 10344772.

The performance deficiency was more than minor because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the ensured reliability of the RPS system was adversely affected because the installed components were not qualified for the application. The team used IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0612, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green), because the finding was a deficiency affecting the design or qualification of a mitigating SSC, and the SSC maintained its operability. The inspectors determined that this finding did not have an associated cross-cutting aspect because this finding did not occur within the previous three years and is not reflective of current licensee performance. (Section 1R18)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent rated thermal power (RTP). On July 18, operators reduced power to 91 percent RTP due to a failed cooling tower pump. The unit returned to 100 percent RTP later that day 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 August 3, the unit experienced a trip of the 'A' condensate booster pump and a recirculation pump runback, which reduced power to 75 percent RTP. The unit returned to 100 percent RTP on August 4 and operated at or near 100 percent RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

- .1 Impending Adverse Weather Conditions: The inspectors reviewed the licensee's preparations to protect risk-significant systems from adverse weather expected from Hurricane Irma on September 11, 2017. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of and during the adverse weather 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.
- .2 Readiness to Cope with External Flooding: The inspectors evaluated the licensee's implementation of flood protection procedures and compensatory measures during impending conditions of flooding or heavy rains. The inspectors reviewed the updated final safety analysis report and related flood analysis documents to identify those areas containing safety related equipment that could be affected by external flooding and their design flood levels. The inspectors walked down flood protection barriers, reviewed procedures for coping with external flooding, and reviewed corrective actions for past flooding events. The inspectors verified that the procedures for coping with flooding could reasonably be used to achieve the desired results. For those areas where operator actions are credited, the inspectors assessed whether the flooding event could limit or preclude the required actions. The inspectors conducted walkdowns of the following plant areas that are below flood levels or otherwise susceptible to flooding.
 - Unit 1 Intake Area
 - Unit 2 Intake Area
 - Diesel Fuel Oil Storage Tank Vents

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” residual heat removal train following surveillance testing
- Unit 1 “B” SLC train while redundant train was out of service for maintenance
- Electric fire pump while both diesel fire pumps out of service for maintenance
- Unit 1 and Unit 2 “C” and “D” MCRAC trains while redundant train was out of service for maintenance

Complete Walkdown: The inspectors verified the alignment of the Unit 2 Reactor Core Isolation Cooling (RCIC) system by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors also reviewed records related to the system outstanding design issues, maintenance work requests, and deficiencies.

The inspectors reviewed corrective action documents, including condition reports and outstanding work orders, to verify the licensee was identifying and resolving equipment alignment discrepancies. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports.

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 2, northeast RHR and core spray pump room, fire area 2203B
- Unit 2, drywell chiller room, fire area 2205N
- Intake structure, fire area 0501
- Unit 1, 203’ working floor, fire area 1205Y
- Unit 2, North and South CRD Area, fire area 2203F and 2205F

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

Fire Drill Observation: The inspectors observed the licensee's fire brigade performance during a fire drill on July 13, and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance:

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

The inspectors also assessed the ability of control room operators to combat potential fires including identifying the location of the fire, dispatching the fire brigade, and sounding alarms. The inspectors evaluated the licensee's ability to declare the appropriate emergency action level and make required notifications in accordance with NUREG 0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (FEMA-REP-1)" and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

b. Findings

No findings were identified.

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

a. Inspection Scope

Resident Inspector Quarterly Review of Licensed Operator Regualification:

The inspectors observed a simulator scenario conducted for training of an operating crew for requalification. The inspectors assessed the following:

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

Resident Inspector Quarterly Review of Licensed Operator Performance:

The inspectors observed licensed operator performance in the main control room during tropical storm Irma on September 11, 2017.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Unit 1, Pressure Control Bypass Valves, Failure to fast open
- Unit 2, Primary Containment, Excessive containment isolation valve leakages

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 Unit 2, July 22 – July 28, including routine maintenance, main control envelope modification, emergent maintenance on 2B standby gas treatment train outage and drycask load.
- Unit 2, August 28 – September 1, including corrective maintenance on 2C emergency diesel generator (EDG) fuel oil relief valve.
- Unit 1 and Unit 2, September 17 – September 29, including planned maintenance on the 'A' MCRAC train.
- Unit 1, September 20, including planned maintenance on high pressure coolant injection (HPCI) and establishment of protected equipment.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors selected the six 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.

- CR10386606, GE-Hitachi Part 21 CRDM Chlorides
- CR10384301, Degraded Category 1 Fire Penetrations
- High Pressure Coolant Injection control system functionality during periodic extended operation of auxiliary oil pump
- CR10407194, Indications of 4160V bus 2F lockout
- CR10410435, Small oil leak on 2C emergency diesel generator
- CR10411719, HPCI condenser vacuum outside acceptance criteria

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

For the following plant modifications listed below, 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.

List of Modifications:

- SNC799744, EDG Fuel Oil Storage Tank Vent Line Missile Protection
- CAR269163 SDV Equipment Non-Safety Classification Evaluation

b. Findings

Introduction: A Green, NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control" was identified for failure to translate regulatory requirements and the design basis of the scram discharge volume (SDV) thermal probes into the System Evaluation Document, which resulted in the installation of a nonsafety-related terminal board in the reactor protection system (RPS).

Description: The scram discharge volume receives the water displaced by the motion of the control rod drive (CRD) pistons during a scram. Should the scram discharge volume fill up with water to the point where not enough space remains for the water displaced during a scram, control rod movement would be hindered in the event a scram were required. To prevent this situation, the reactor is scrammed when the water level in the discharge volume attains a value high enough to verify that the volume is filling up, yet low enough to ensure that the remaining capacity in the volume can accommodate a scram. Scram discharge volume high water level inputs to the RPS are from four non-indicating float switches and four redundant and diverse thermal probes. The switches are arranged in pairs so that no single event prevents a reactor scram due to scram discharge volume high water level. The IEEE Std 279-1971 states, in part, "nuclear power generating station protection system encompasses all electric and mechanical devices and circuitry (from sensors to actuation device input terminals) involved in generating those signals associated with the protective function." Further, the NRC issued Generic Letter 83-28, a result of the Salem ATWS event, which stated in part that, "Licensees and applicants shall confirm that all components whose functioning is required to trip the reactor are identified as safety-related on documents, procedures, and information handling systems used in the plant to control safety-related activities, including maintenance, work orders, and parts replacement." In the docketed response to the generic communications, Hatch confirmed that all installed components whose functioning was required to trip the reactor was identified as equivalent to safety-related. The SDV water level thermal probes were subsequently installed as a measure of diversifying the SDV scram function. The licensee procured and installed all thermal probes as safety-related, however when the System Evaluation Document was created, the safety classification of the thermal probes was classified to be nonsafety-related. As a result, a non-safety related terminal board item was installed in 1989 per WO 28905575 and subsequently replaced with a safety related component on July 7, 2017.

Analysis: The failure to classify reactor protection system components as safety related in accordance with design documents was a performance deficiency. This performance deficiency is more than minor because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the ensured reliability of the RPS system was adversely affected because the installed components were not qualified for the application. The team used IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0612, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green), because the finding was a deficiency affecting the design or qualification of a mitigating SSC, and the SSC maintained its operability. The inspectors determined that this finding did not have an associated cross cutting aspect because this finding did not occur within the previous three years and is not reflective of current licensee performance.

Enforcement: 10 CFR 50, Appendix B, Criterion III, "Design Control" requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, the licensee did not correctly translate regulatory requirements and the design basis of the SDV thermal probes into the System Evaluation Document, which resulted in the installation of a non-safety related terminal board in the RPS. This violation of regulatory requirement existed from 1989 until the installation of a qualified terminal board on July 7, 2017. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as CR 10344772. (NCV 05000321, 366/2017003-01, Installation of Non-Conforming RPS Equipment)

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.

- SNC789139, Replacement of 1A standby liquid control (SBLC) pump bearing oil sight glass, August 10, 2017
- SNC808306, SNC317252 Replace Diesel Fire Pump Batteries, August 25, 2017
- SNC532657, 1A RHRSW Pump Motor Operation following disconnection of wiring for cable testing, August 30, 2017
- SNC878140, Replacement of pipe fittings for 2C EDG fuel oil relief valve, August 29, 2017
- SNC568392, Testing following Unit 1 HPCI system outage and bi-annual preventive maintenance, September 22, 2017
- SNC541317, 1A Core Spray system outage, September 25, 2017

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-X43-001-1, Fire Pump Test, Ver. 3.4
- 34SV-E41-002-2, "HPCI Pump Operability," Ver. 38.0

In-Service Tests (IST)

- 34SV-E11-001-1, "RHR Pump Operability," Ver. 26.2
- 34SV-E51-002-1, "RCIC Pump Operability," Ver. 27.3

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed two simulator-based licensed operator requalification exam evolutions involving two shift operating crews which were both conducted on September 6, 2017. The inspectors observed operator performance in the simulator and evaluated timeliness and accuracy of event classification. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors observed the post-evolution critiques 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 July 2016 and June 2017 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

- residual heat removal system (2)
- high pressure injection system (2)
- emergency AC power system (2)

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 Annual Follow-up of Selected Issues: Fisher Model 9200 Butterfly Valve Leakrate Failures

a. Inspection Scope

The inspectors conducted a detailed review of condition report CR 10329339 regarding excessive leakage torus purge supply inboard isolation valve 2T48F309. This issue was selected for review because there have been several repeat leakrate test failures associated with this particular valve as well as other system valves on Unit 2 since 2009. The valves were 18-inch Fisher Model 9200 butterfly valves installed in the torus purge supply and drywell vent systems. In order to assess whether there were licensee performance weaknesses, inspectors reviewed cause evaluations from 2011 and 2017, maintenance rule evaluations, and historical corrective action records associated with these components.

b. Observations and Findings

No findings were identified. Condition Report 10329339 reported that the torus purge supply inboard isolation valve 2T48F309 failed its "as-found" leakrate test during the February 2017 refueling outage. The licensee's corrective action report noted that the valve had failed the past six bi-annual leakrate tests since 2007. During most of these tests, the redundant in-line valve passed its leakrate test, which prevented the penetration from adversely affecting the primary containment barrier function and being classified as a maintenance rule functional failure. The one exception occurred in 2011 where both valves failed the test. The apparent cause evaluation report at that time identified that the preventive maintenance procedure was inadequate to identify and replace worn parts internal to the valve and that a more intrusive inspection was necessary. A valve-specific work order was planned for the 2T48F309 valve in the 2013 outage as a corrective action; however, the specified work was of limited scope and did not accomplish the intended corrective actions. A second, more in-depth, work order was created during the outage after the valve failed the initial attempt at an "as-left" leakrate test. The test passed the "as-left" test in 2013; however, the valve failed the "as-found" test during the 2015 outage due to a pinched and cut T-ring. The valve was repaired using the preventive maintenance procedure with satisfactory test results; however, the valve subsequently failed the "as-found" test during the 2017 outage due to the T-ring being out of adjustment. This was corrected by using the same preventive maintenance procedure as before. Inspectors concluded that there were weaknesses with the licensee's identification of corrective actions to correct the cause of repetitive failure for this particular valve. Specifically, reliance on the limited scope preventive maintenance procedure for performing corrective maintenance was evidenced as not being effective after the 2011 failure; however, no sustainable resolution was developed for correcting repeat test failures for this valve until a different penetration in the same system experienced a functional failure in 2017. The licensee's programs and trending methodology were established in such a manner that they were vulnerable to tolerating repetitive single valve failures without identifying a need for corrective action until total failures occurred. The most recent cause determination for the 2017 functional failure re-identified the need to develop enhanced maintenance procedures to provide instructions for full disassembly and reassembly of these type of valves and to assess whether any other components were repeatedly failing leakrate testing. This issue represented a minor violation of 10 CFR 50, Appendix B, Criterion XVI because the licensee failed to promptly identify and correct conditions adverse to quality. Specifically, the licensee did not promptly identify and correct deficiencies with valve components that caused the 2T48F309 valve to fail leakrate testing after the cause was

identified in 2011. The violation was minor because the penetration has remained reliable due to the satisfactory performance of the redundant valve in the line. The minor violation was entered into the licensee's corrective action program as CAR 269167. This failure to comply with 10 CFR 50, Appendix B, Criterion XVI constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

.3 Annual Followup of Selected Issues: Rod Blocks Due to Possible Bistable Flow

a. Inspection Scope

The inspectors conducted a detailed review of condition report CR 10405305, RBM Downscale Alarm. This issue was selected for review because there have been several repeat APRM fluctuations on Unit 2 since 2016. All four APRMs momentarily decreased to approximately 94.6 percent before increasing to approximately 103 percent and returning to rated thermal power. In order to assess whether there were licensee performance weaknesses, inspectors reviewed condition reports from 2016 and 2017, GE service information letters, and historical corrective action records associated with these components.

b. Observations and Findings

No findings were identified. Inspectors interviewed engineers and reviewed licensee response to the issue through the corrective action program. Inspectors concluded there was one weakness in that the corrective action program did not identify the cause of the fluctuation after the entry of the 2016 condition report. The licensee closed the condition report to work order SNC765464 which was subsequently closed with no resolution of the cause of the safety related condition. The current corrective action plan is to monitor plant parameters to confirm the existence of bistable flow. Bistable flow are random changes in recirculation pump flow at the header cross in the recirculation loop discharge piping.

40A3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 (CLOSED) LER 05000321/2017-006-00 Manual Scram Initiated Due to Inoperable Intermediate Range Monitors

a. Inspection Scope

On April 20, 2017, with Unit 1 in Mode 4 at 0 percent power, the Unit 1 Reactor Mode Switch was taken from the "refuel" to the "shutdown" position which resulted in the automatic actuation of the reactor protection system. The mode switch was taken to "shutdown" after an inadequate review and the applicable TS LCOs. Operators incorrectly determined that TS LCO 3.10.4, was not met and followed Required Action A.2.2, based on having no operable intermediate range monitors in one quadrant of the reactor vessel as a result of emergent maintenance activities on intermediate range monitors. Because all control rods had been previously inserted, TS LCO 3.10.4 was satisfied and there was no control rod motion when the mode switch was positioned to "shutdown." The inspectors reviewed this LER for potential performance deficiencies and/or violations of regulatory requirements. Additionally, discussions were held with Operations and Licensing staff members to understand the details surrounding this issue. This condition was documented in the licensee's corrective action program as CR 10336918. This LER is closed.

b. Findings

No findings or violations of NRC requirements were identified.

2. (CLOSED) LER 05000321, 366/2017-004-00, Tornado Missile Vulnerabilities Result in Condition Prohibited by Technical Specifications

a. Inspection Scope

The inspectors reviewed this LER for potential performance deficiencies and/or violations of regulatory requirements. Additionally, discussions were held with Operations and Licensing staff members to understand the details surrounding this issue. This LER is closed.

b. Findings

Description: On August 31, 2015, it was identified that the emergency diesel generator fuel oil storage tank vents were not adequately protected from tornado-generated missiles. The licensee declared the diesel generators operable, pending a technical evaluation, and implemented compensatory actions. On September 18, 2015, after technical evaluation of the condition, the on-shift Operations staff declared the emergency diesel generators inoperable and implemented Enforcement Guidance Memorandum (EGM) 15-002, "Enforcement Discretion for Tornado-Generated Missile Protection Noncompliance." The licensee made a non-emergency report in accordance with 10 CFR 50.72(b)(3)(ii)(B) and 10 CFR 50.72(b)(3)(v)(D) via EN# 52650. These items were entered into the licensee's CAP and discussed with the resident inspectors. The inspectors reviewed this LER, EGM 15-002 and verified the licensee-implemented adequate compensatory measures in accordance with interim staff guidance DSS-ISG-2016-01, "Clarification of Licensee Actions in Receipt of Enforcement Discretion per Enforcement Guidance Memorandum EGM 15-002". Final corrective actions to resolve these issues are pending.

Enforcement: Hatch Unit 1 and 2 TS limiting condition for operation 3.8.1, "AC Sources – Operating," required all emergency diesel generators be operable in MODES 1, 2 and 3. With two or more diesel generators inoperable, the required action must be taken by the applicable completion time. Contrary to the above, Unit 1 and 2 operated until September 18, 2015, with two or more EDGS inoperable. The inspectors concluded that the violation would normally be characterized as a Severity Level IV violation because it was of very low safety significance (Green). Since the violation was identified during the discretion period covered by Enforcement Guidance Memorandum 15-002, Revision 1, "Enforcement Discretion for Tornado Missile Protection non-compliance," (ADAMS ML16355A286) and because the licensee implemented compensatory measures, the NRC is exercising discretion (EA-17-131) and not issuing enforcement action. The licensee has entered this issue into the corrective action program as condition reports 10116247, 10348904 and 10416519.

One minor violation was identified during closure of this LER for the failure to make the required notifications for this tornado missile vulnerability within the time limits described in 10 CFR 50.72 and 10 CFR 50.73. The violation was considered minor because the licensee identified the issue and made the required report upon discovery after reviewing the revised EGM guidance. This failure to comply with 10 CFR 50.72 and 10 CFR 50.73 constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

.3 (CLOSED) LER 05000366/2017-003-00 Primary Containment Isolation Penetration Exceeded Overall Allowable Technical Specification Leakage Limits

a. Inspection Scope

The inspectors reviewed this LER for potential performance deficiencies and/or violations of regulatory requirements. Additionally, discussions were held with Operations and Licensing staff members to understand the details surrounding this issue. This condition was documented in the licensee's corrective action program as CR 10333178. This LER is closed.

b. Findings

Description: On February 19, 2017, during a refueling outage, the Unit 2 outboard drywell ventilation penetration isolation valve 2T48F320 failed its required "as-found" local leak rate test (LLRT). Previously on February 7, 2017, the inboard drywell ventilation penetration isolation valve 2T48F319 had also failed its LLRT. Therefore, due to both primary containment isolation valves in this penetration flow path exceeding the maximum allowable leakage rate (L_a) (1.2 percentage of primary containment air weight per day), the condition represented a failure of the associated penetration to maintain primary containment integrity per Technical Specification 5.5.12. As an immediate corrective action, the licensee repaired and tested the valves prior to restarting the reactor.

Enforcement: Technical Specification 5.5.12, "Primary Containment Leakage Rate Testing Program," required, in part, that the primary containment leakage rate remain less than the maximum allowable primary containment leakage rate, L_a . Contrary to the above, Unit 2 operated from the initiation of the degraded condition until February 6, 2017, with a primary containment leakage rate that exceeded L_a . The inspectors concluded that the violation would normally be characterized as a Severity Level IV violation; this determination was informed by NRC IMC 0609, Appendix H, "Containment Integrity Significance Determination Process," dated May 6, 2004. Using Table 6.2, the inspectors determined the violation was of very low safety significance because the leakage through the valves was much less than 100 percent of containment volume per day. The amount of leakage represented approximately 3 percent of containment volume per day. However, the inspectors reviewed the cause determination report for the event and historical valve performance data and concluded that the equipment failure could not have been avoided or detected by your quality assurance program or other related control measures. Specifically, there were no indications available to operators that the subject penetration was leaking during the previous operating cycle and there were no deficiencies identified with prior valve maintenance and testing. The inspectors reviewed failure history on Unit 1 and 2, licensee previous corrective actions, and vendor recommended practices and based on this, a performance deficiency was not identified. Therefore, in accordance with Section 3.10 of the Enforcement Policy, the NRC is exercising enforcement discretion (EA-17-188) and will not issue a violation for this matter. This issue was documented in the licensee's corrective action program as CR 10333178.

4OA5 Other Activities

.1 Institute of Nuclear Power Operations Report Review

In accordance with Executive Director of Operations Procedure 0220, "Coordination with the Institute of Nuclear Power Operations," the inspectors reviewed the most recent INPO evaluation and accreditation report dated August 10, 2017, to determine if the report identified safety or training issues not previously identified by NRC evaluations. The report contained no safety issues that were not already known by the NRC.

4OA6 Meetings, Including Exit

On October 26, 2017, the resident inspectors presented the inspection results to Tony 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
J. Collins, Licensing Supervisor
B. Deen, Training Director
B. Hulett, Engineering Director
G. Johnson, Regulatory Affairs Manager
R. Lewis, Operations Support Manager
J. Henry, Operations Director
A. Manning, Work Management Director
J. Merritt, Security Manager
R. Reddick, Emergency Preparedness Supervisor
C. Rush, Nuclear Oversight Manager
R. Spring, Plant Manager
M. Todd, Engineering Programs Supervisor
M. Torrance, Design Engineering Manager
D. Vineyard, Site Vice President
B. Wainwright, Operations Training Manager

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

5000321, 366/2017003-01 NCV Installation of Non-Conforming RPS Equipment
(Section 1R18)

Closed

05000321/2017-006-00 LER Manual Scram Initiated Due to Inoperable
Intermediate Range Monitors (Section 4OA3.1)

05000321, 366/2017-004-00 LER Tornado Missile Vulnerabilities Result in
Condition Prohibited by Technical Specifications
(Section 4OA3.2)

05000366/2017-003-00 LER Primary Containment Isolation Penetration
Exceeded Overall Allowable Technical
Specification Leakage Limits (Section 4OA3.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather

Procedures

NMP-OS-017, "Severe Weather," Ver. 1.1

34AB-Y22-002-0, "Naturally Occurring Phenomena," Ver. 17.4

Drawings

SNC799744C002, SNC799744M001, SNC799744M002

Other

SCNH-13-020, "Hatch Probable Maximum Flood Hydraulics – Severe Accident Management (SAM) for Fukushima Near-Term Task Force (NTTF) Recommendation 2.1 Flooding Re-evaluation," Ver. 1.0

SCNH-13-021, "Evaluation of Plant Hatch Local Intense Precipitation – Severe Accident Management (SAM) for Fukushima Near-Term Task Force (NTTF) Recommendation 2.1 Flooding Re-evaluation," Ver. 1.0

Section 1R04: Equipment Alignment

Procedures

34SO-E11-010-1, "Residual Heat Removal System," Ver. 44.13

34SO-C41-003-1, "Standby Liquid Control System," Ver. 12.3

34SV-X43-001-1, "Fire Pump Test," Ver. 3.4

34SO-E51-001-2, "Reactor Core Isolation Cooling (RCIC) System," Ver. 27.1

34SO-Z41-001-1, "Control Room Ventilation System," Ver. 23.1

Drawings

H11033, S11195, H26023, H26024

Other

Unit 2 FSAR Chapter 5.5.6, "RCIC System," Rev. 27

Unit 2 FSAR Chapter 8.4, "Station Blackout (SBO)," Rev. 22

System Health Report, RCIC system Q3-2017

MSPI Heat Removal System indicator through August 2017

List of open work orders for Unit 2 RCIC system as of September 2017

List of CRs/TEs/CARs for Unit 2 RCIC system since July 2016

Section 1R05: Fire Protection

Procedures

E.I. Hatch Fire Protection Fire Hazards Analysis

Drawings

A-43965 sheet 99A/B, Unit 2 NE RHR & Core Spray Room Reactor Bldg. el. Below 130' 0"

A-43965 sheet 112A/B, Chiller room Reactor Bldg. el. 164' 0"

A-43966 sheet 27B, Intake Structure

H-11847, Fire Hazards Analysis Intake Structure, Ver. 2.0

A-43965 sheet 73A/B, Working floor Bldg. el. 203' 0"

A-43965 sheet 106A/B, Unit 2 North CRD Area Reactor Bldg. el. 130' 0"

A-43965 sheet 107A/B, Unit 2 South CRD Area Reactor Bldg. el. 130' 0"

Section 1R11: Licensed Operator Regualification Program and Licensed Operator Performance

Drill Scenario: LT-SG-51075

Procedures

34AB-P41-001-1, "Loss of Plant Service Water," Ver. 11.1

34SO-P41-001-1, "Plant Service Water System," Ver. 36.14

Section 1R12: Maintenance EffectivenessProcedures

NMP-ES-027, "Maintenance Rule Program," Ver. 6.0

Other

System N30 Maintenance Rule (MR) Scoping Manual Documents

System N30 MR Performance Criteria

System Health Report –N30 System –2nd quarter 2017

System T23 Maintenance Rule (MR) Scoping Manual Documents

System T23 MR Performance Criteria

System T23 a(1) Review, and a(1) Evaluation

Maintenance Rule Expert Panel Meeting Minutes #2017-03

TE 979992, 981792, 981793

CAR 268702, 269167, 268804

CR 10329339, 10342940, 10327810, 10333178, 10342252

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Equipment Out of Service calculations 7/22/17-8/4/17

Equipment Out of Service calculations 8/19/17-9/01/17

Equipment Out of Service calculations 9/17/17-9/29/17

Procedures

NMP-OS-010-002, "Hatch protected equipment logs," Ver. 11.0

Section 1R15: Operability EvaluationsProcedures

34SV-SUV-019-1, "Surveillance Checks," Ver. 37.22

52SV-R43-002-0, "Diesel Generator Lube Oil Inventory," Ver. 1.4

Drawings

H-27664, H-24100

ESI Drawing D-10015 dated 7-17-12

Other

S-27441, "HPCI Turbine Instruction Manual," Ver. 8.0

Operator Shift Logs dated August, 30, 2017

CR 10410435

Section 1R18: Plant ModificationsProcedures

34GO-OPS-056-0, "Receipt of Diesel Generator, Security Diesel, Dry Storage (ISFSI) Diesel, Diesel Fire Pumps, and Auxiliary Boiler Fuel Oil," Ver. 12.1

Drawings

SNC799744C002, SNC799744M001, SNC799744M002, SNC799744LOM-1

Other

SNC799744CCE

SNC79974450.59

SMNH-16-023, "Emergency Diesel Generator Fuel Oil Tank Vent Lines," Ver. 1.0

SCNH-16-039, "Qualification of EDG FOST Vent Line Missile Protection," Ver. 1.0

BH2-C-S23-V009-0007, "Missile-1" Rod, 3'-0" Long Penetration Velocity," Ver. 0.0

ANSI/ANS-59.51-1997 (R2015), "Fuel Oil Systems for Safety-Related Emergency Diesel Generators

NFPA-30-1996, "Flammable and Combustible Liquids Code"

Section 1R19: Post Maintenance TestingProcedures

52PM-C41-104-1, "SBLC System Pump Major Inspection/Overhaul," Ver. 2.2

52SV-R42-004-0, "Battery Inspection & Data Collection," Ver. 6.2

34SV-E11-004-1, "RHR Service Water Pump Operability," Ver. 20.3

34SV-R43-003-2, "EDG 2C Monthly Test," Ver. 24.1

34IT-E41-003-1, "HPCI Turbine Speed Control Test," Ver. 3.1

Drawings

HL13614, BM13012, H-16332, H-16333

Other

SNC317252, 532657, 866467

Fire Hazards Analysis, Section 9.2, Appendix B – Fire Protection Equipment Operating and Surveillance Requirements

C&D Technology Specification Sheet for 4CJCSD-13 Battery

Section 1R22: Surveillance TestingProcedures

34SV-X43-001-1, "Fire Pump Test," Ver. 3.4

Other

Fire Hazards Analysis, Section 9.2, Appendix B – Fire Protection Equipment Operating and Surveillance Requirements

Fire Hazards Analysis, Section 4.7, Fire Protection Water Supplies

Section 1EP6: Drill EvaluationProcedures

NMP-EP-141, "Event Classification," Ver. 1.0

NMP-EP-141-002, "Hatch Emergency Action Levels and Basis (NEI 99-01 Revision 4)," Ver. 1.0

Other

Simulator Exercise Guide: LR-SE-00126, Ver. 04.1

Simulator Exercise Guide: LR-SE-00161, Ver. 05.2

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

Section 4OA1: Performance Indicator VerificationOther

MSPI Derivation Reports for High Pressure Injection System for period through July 2017

MSPI Derivation Reports for Residual Heat Removal System for period through July 2017

MSPI Derivation Reports for Emergency AC Power System for period through July 2017

CR 10328291

Section 40A2: Identification and Resolution of Problems

Procedures

52PM-T48-013-0, "Purge & Vent Valve T-Ring Replacement," Ver. 12.1
52PM-T48-013-0, "Purge & Vent Valve T-Ring Replacement," Ver. 10.4

Drawings

H-26084, HB-26084S-27119, S-28566

Other

Apparent Cause Determination Report 2011105213
Cause Determination Report for CAR 269167
CR 10329339, 10342940, 10327810, 10333178, 10342252, 603525, 608985, 10116247,
10348904, 10416519, 602067
CAR 268702, 269167, 268804, 176314, 205857, 206008
TE 981788, 981789, 981792, 981906, 979992, 603582
WO SNC118488, SNC 470620, SNC636674, SNC744318

40A3: Follow-up of Events and Notices of Enforcement Discretion

Procedures

40AC-ENG-021-0, "Primary Containment Leakage Rate Testing Program," Ver. 1.1
42EN-INS-002-0, "Containment Leakage Rate Testing Plan," Ver. 8.0
34SO-T48-002-2, "Containment Atmospheric Control Dilution Systems," Ver. 27.3

Other

CR 10333178
LER 2017-003-00
Cause Determination Report for CAR 269167
WO SNC470620, SNC472075, SNC843309, SNC810310