



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 02, 2024

Brad Kapellas, Site Vice President
Entergy Operations, Inc.
Grand Gulf Nuclear Station
P.O. Box 756
Port Gibson, MS 39150

**SUBJECT: GRAND GULF NUCLEAR STATION – INTEGRATED INSPECTION
REPORT 05000416/2024001**

Dear Brad Kapellas:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Grand Gulf Nuclear Station. On April 10, 2024, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

Two findings of very low safety significance (Green) are documented in this report. Two of these findings involved violations of NRC requirements. We are treating these violations as non-cited violations (NCVs) consistent with section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, 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 IV; the Director, Office of Enforcement; and the NRC Resident Inspector at Grand Gulf Nuclear Station.

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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC Resident Inspector at Grand Gulf Nuclear Station.

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 Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,



Signed by Josey, Jeffrey
on 05/02/24

Jeffrey E. Josey, Chief
Reactor Projects Branch C
Division of Operating Reactor Safety

Docket No. 05000416
License No. NPF-29

Enclosure:
As stated

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 DATED MAY 02, 2024

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 REPORT 05000416/2024001

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

Docket No. 05000416

License No. NPF-29

Report No. 05000416/2024001

Enterprise Identifier: I-2024-001-0006

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station

Location: Port Gibson, MS

Inspection Dates: January 1, 2024, to March 31, 2024

Inspectors: R. Azua, Senior Reactor Inspector
B. Baca, Health Physicist
D. Dodson, Senior Reactor Inspector
J. Drake, Senior Reactor Inspector
R. Kopriva, Senior Project Engineer
J. Melfi, Project Engineer
J. O'Donnell, Senior Health Physicist
W. Schaup, Senior Project Engineer
A. Smallwood, Senior Resident Inspector

Approved By: Jeffrey E. Josey, Chief
Reactor Projects Branch C
Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting an integrated inspection at Grand Gulf Nuclear Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

Failure to Properly Stake the Keyway in a High-Pressure Core Spray Motor-Operated Valve			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000416/2024001-01 Open/Closed	None (NPP)	71111.04
The inspectors are documenting a self-revealed, Green finding and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” identified when the keyway backed out of a motor-operated valve resulting in control room operators declaring the high-pressure core spray system inoperable. Specifically, when the keyway backed out of the high-pressure core spray minimum flow motor-operated valve E22-F012, the valve could not be opened nor closed.			

Failure to Follow Procedures Results in Isolation of the RCIC System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000416/2024001-02 Open/Closed	[H.13] - Consistent Process	71111.24
The inspectors are documenting a self-revealed, Green finding and associated non-cited violation of 10 CFR Part 50 Appendix B, Criterion V, “Instructions, Procedures and Drawings,” identified when the reactor core isolation cooling system isolated during an instrumentation and controls surveillance. The isolation occurred when technicians failed to adhere to surveillance procedure 06-IC1E31-Q-1003-7 and missed steps while performing the test.			

Additional Tracking Items

None.

PLANT STATUS

Grand Gulf Nuclear Station, Unit 1, began the inspection period shutdown. On January 3, 2024, the operators began a plant startup. On January 6, 2024, a rod pattern sequence change was conducted, and subsequently the unit achieved 100 percent rated thermal power (RTP). The unit lowered power to 96 percent RTP on January 19, 2024, due to a high stator bar temperature in the main turbine generator. On January 26, 2024, a rod pattern sequence change was conducted, and the unit was returned to 100 percent RTP. On February 19, 2024, the unit began a power coast down in preparation for refueling outage 24 (RF24). The unit coasted down to 96 percent RTP by March 1, 2024, when the unit was shut down for RF24. Upon completion of RF24, the operators began the startup on March 29, 2024. At the end of the inspection period on March 31, 2024, the unit was operating at 74 percent RTP.

INSPECTION SCOPES

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

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from impending external flooding with a flash flood warning on January 24, 2024.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

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

- (1) low pressure core spray while high-pressure core spray was inoperable on January 30, 2024
- (2) division 1 and 2 standby liquid control on February 1, 2024
- (3) division 1 standby service water while in use for shutdown cooling for division 1 residual heat removal on March 6, 2024
- (4) division 3 high-pressure core spray diesel generator on March 27, 2024.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) control building, 190-foot elevation, upper control room, fire zone OC703, on January 19, 2024
- (2) emergency diesel generator deluge piping in breezeway on February 6, 2024
- (3) auxiliary building, 119-foot elevation hallways, on March 5, 2024
- (4) auxiliary building, 166-foot elevation hallways, on March 5, 2024
- (5) drywell, fire zone 1A112, on March 20, 2024

71111.08G - Inservice Inspection Activities (BWR)

BWR Inservice Inspection Activities Sample - Nondestructive Examination and Welding Activities (IP Section 03.01) (1 Sample)

The inspectors evaluated boiling water reactor non-destructive examination by reviewing the following examinations from March 11, 2024 - March 15, 2024:

- (1)
 1. Nondestructive examination activity
 - a. Ultrasonic examination
 - i. Standby liquid control, 1C41G136W514, pipe-to-reducer circumferential weld
 - ii. Nuclear boiler, 1B21G026W19, pipe to valve
 - b. Dye Penetrant
 - i. Reactor water cleanup, 1E51FX075, FW 902
 - ii. Reactor water cleanup, 1E51FX075, FW 903
 - iii. Reactor water cleanup, 1E51FX075, FW 904
 - iv. Reactor water cleanup, 1E51FX075, FW 905
 - c. Visual examinations
 - i. Work order 53016128, main steam relief valve, six studs, six nuts
 - ii. Reactor water cleanup, 1E51FX075, FW 902
 - iii. Reactor water cleanup, 1E51FX075, FW 903
 - iv. Reactor water cleanup, 1E51FX075, FW904
 - v. Reactor water cleanup, 1E51FX075, FW 905
 2. Relevant indication, grind mark on 1E51FX075 near FW 905 was evaluated and accepted for continued service
 3. Work order 584160-01, reactor water cleanup pipe replacement, FW-901, FW-902, FW-903, FW-904, FW-905, FW-906, FW-907, FW-908, FW-909, FW-910, FW-911, FW-912, FW-913
 4. Inspectors reviewed 27 condition reports for inservice issues and operating experience, no significant issues were identified.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (2 Samples)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during a downpower and rod pattern adjustment on January 26, 2024.
- (2) The inspectors observed and evaluated licensed operator performance in the control room during cooldown for refueling outage on March 2, 2024.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (3 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) work order 54106914, repair of E22-F022 high-pressure core spray minimum flow bypass valve on January 29, 2024
- (2) work order 54098390, engineered safety feature 12 transformer maintenance on February 6, 2024
- (3) work order 54100584, reactor core isolation cooling steam supply warmup valve E51-F076 packing leakage on March 30, 2024

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) protected systems during high-pressure core spray inoperability on January 30, 2024
- (2) high-pressure core spray risk mitigation actions during reactor core isolation cooling system isolation on February 8, 2024
- (3) residual heat removal division 1 minimum flow bypass valve E12-F064A stem nut replacement on February 15, 2024
- (4) condition report CR-GGN-2024-01673, reactor core isolation cooling steam supply warmup valve E51-F076 packing leakage on March 29, 2024

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) condition report CR-GGN-2024-00100, engineered safety feature transformer 12 oil leakage on January 10, 2024
- (2) condition report CR-GGN-2024-00259, residual heat removal division 1 pump seal cooler reduced flow on February 15, 2024

- (3) condition report CR-GGN-2024-00881, source range monitor alpha on February 20, 2024
- (4) condition report CR-GGN-2024-01399, division 3 diesel generator lube oil sample contains trace level of water on March 7, 2024
- (5) condition report CR-GGN-2024-01977, division 3 emergency diesel generator lube oil sample on March 26, 2024

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) engineering change 64812, manual control of standby service water divisions 1 and 2 during cold weather and an outage on January 25, 2024
- (2) temporary modification engineering change 544117242, alternative spent fuel pump motor replacement, on February 27, 2024

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated refueling outage RF24 activities from March 1, 2024, to March 29, 2024.

71111.24 - Testing and Maintenance of Equipment Important to Risk

The inspectors evaluated the following testing and maintenance activities to verify system operability and/or functionality:

Post-Maintenance Testing (PMT) (IP Section 03.01) (5 Samples)

- (1) work order 53020792, division 1 standby liquid control pump packing replacement and quarterly pump run on February 15, 2024
- (2) work order 54113910, valve E12-F064A, residual heat removal division 1 minimum flow bypass valve stem nut replacement on February 28, 2024
- (3) work order 54122845, recirculation pump A seal flow setpoint change on March 16, 2024
- (4) work order 54100854, reactor core isolation cooling steam supply warmup valve E51-F076 gland nut replacement on March 27, 2024
- (5) work order 53014465, feedwater containment isolation valve B21-F032B local leak rate test on March 30, 2024

Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) work order 54079438, residual heat removal room high temperature functional test on February 10, 2024
- (2) work order 52935918, reactor mode switch interlock functional test on March 2, 2024
- (3) work order 53011060, division 2 emergency diesel generator functional test on March 19, 2024

Containment Isolation Valve (CIV) Testing (IP Section 03.01) (1 Sample)

- (1) work order 53010916, reactor core isolation cooling local leak rate test including valve E51-F064 on March 20, 2024

Diverse and Flexible Coping Strategies (FLEX) Testing (IP Section 03.02) (1 Sample)

- (1) work order 416746, task 1 hale pump C002 functional run-on January 18, 2024

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

Instructions to Workers (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated how the licensee instructs workers on plant-related radiological hazards and the radiation protection requirements intended to protect workers from those hazards.

Contamination and Radioactive Material Control (IP Section 03.03) (2 Samples)

The inspectors observed/evaluated the following licensee processes for monitoring and controlling contamination and radioactive material:

- (1) surveys of potentially contaminated material leaving the radiologically controlled area (RCA)
- (2) workers exiting the RCA during a refueling outage

Radiological Hazards Control and Work Coverage (IP Section 03.04) (5 Samples)

The inspectors evaluated the licensee's control of radiological hazards for the following radiological work:

- (1) reactor water cleanup (RWCU) heat exchanger (HX) removal of instrumentation, radiological work permit (RWP) 2024-1966, revision 00
- (2) under vessel maintenance - control rod drive mechanism removal/replacement, RWP 2024-1508, revision 00
- (3) Radiation Protection support for the refuel floor, RWP 2024-1400, revision 00
- (4) RWCU HX temporary shielding installation, RWP 2024-1966, revision 00
- (5) RWCU HX valve replacement, RWP 2024-1966, revision 00

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (5 Samples)

The inspectors evaluated licensee controls of the following high radiation areas (HRAs) and very high radiation areas (VHRAs):

- (1) HRA - pre-coat filter room on the 133-foot elevation of the turbine building
- (2) HRA - ladder to reach the recirculation jet pump risers on the 161-foot elevation in the drywell
- (3) HRA - fuel pool cooling backwash tank room on the 166-foot elevation of the auxiliary building
- (4) HRA - reactor water cleanup heat exchanger room on the 170-foot elevation of the containment building
- (5) HRA - control blade access in the spent fuel pool on the 208-foot elevation of the auxiliary building

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Permanent Ventilation Systems (IP Section 03.01) (2 Samples)

The inspectors evaluated the configuration of the following permanently installed ventilation systems:

- (1) control room envelope ventilation system which supports the control room and technical support center
- (2) standby gas treatment system

Temporary Ventilation Systems (IP Section 03.02) (2 Samples)

The inspectors evaluated the configuration of the following temporary ventilation systems:

- (1) N11F026A high-pressure turbine stop valve removal HEPA ventilation
- (2) turbine rotor decontamination tent filtered ventilation

Use of Respiratory Protection Devices (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the licensee's use of respiratory protection devices.

Self-Contained Breathing Apparatus for Emergency Use (IP Section 03.04) (1 Sample)

- (1) The inspectors evaluated the licensee's use and maintenance of self-contained breathing apparatuses.

71124.08 - Radioactive Solid Waste Processing & Radioactive Material Handling, Storage, and Transportation

Shipment Preparation (IP Section 03.04) (1 Sample)

- (1) The inspectors observed the preparation of radioactive shipment 2024-41 containing main steam relief valves.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (1 Sample)

(1) January 1, 2023, through December 31, 2023

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (1 Sample)

(1) January 1, 2023, through December 31, 2023

BI02: RCS Leak Rate Sample (IP Section 02.11) (1 Sample)

(1) January 1, 2023, through December 31, 2023

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

(1) January 1, 2023, through December 31, 2023

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (IP Section 02.16) (1 Sample)

(1) January 1, 2023, through December 31, 2023

71152A - Annual Follow-up Problem Identification and Resolution

Annual Follow-up of Selected Issues (Section 03.03) (2 Samples)

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

- (1) condition report CR-GGN-2024-00267, division 2 engineered safety feature battery and chargers on February 22, 2024
- (2) condition report CR-GGN-2023-00721, corrective actions related to control rod drive mechanism cap screw chemical composition on March 15, 2024

INSPECTION RESULTS

Failure to Properly Stake the Keyway in a High-Pressure Core Spray Motor-Operated Valve			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000416/2024001-01 Open/Closed	None (NPP)	71111.04
The inspectors are documenting a self-revealed, Green finding and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” identified when the keyway backed out of a motor-operated valve resulting in control room operators declaring the high-pressure core spray system inoperable.			

Specifically, when the keyway backed out of the high-pressure core spray minimum flow motor-operated valve E22-F012, the valve could not be opened nor closed.

Description: On January 29, 2024, instrumentation and control personnel were conducting a quarterly surveillance on the high-pressure core spray (HPCS) system. During the surveillance the minimum flow bypass valve E22-F012 failed to close as required. The valve indicated a dual position in the control room. This indication meant the valve was neither fully closed nor fully open, but instead in an indeterminate position. The HPCS system was declared inoperable by the control room staff. The licensee documented this issue in their corrective action program as condition report CR-GGN-2024-00498.

While performing troubleshooting work order (WO) 54106914 it was found that the keyway connecting the motor operator to the valve had backed out and sheared. Further investigation by the licensee determined that the failure to properly stake the keyway occurred on November 27, 2010, while performing WO 00151684.

The inspectors reviewed work order 00151684 and interviewed licensee personnel to determine the cause of the keyway backing out of the shaft and gear assembly. The work order referred to Procedure 07-S-12-95, "Electrical Maintenance for Limitorque Actuators." WO 00151684 did not specifically include work steps from the procedure; therefore, it is unknown if the technicians in the field on November 27, 2010, understood the critical steps to properly stake the keyway for the valve. Procedure 07-S-12-95, step 7.4.3(j) clearly states "stake the end of the shaft to prevent the key from sliding out."

The E22-F012 valve was repaired on January 31, 2024, and a post maintenance test was completed to return the HPCS system to operable. The inspectors noted that WO 54106914 used and included the applicable portions of Procedure EN-MA-152, "Overhaul of Limitorque SMB/SB 0 through 4 Actuators", revision 4. As a result, WO 5416914 included drawings, and detailed instructions describing proper staking of the keyway to prevent the keyway from backing out of the shaft and gear assembly.

Corrective Actions: The licensee reinstalled the motor operator to the valve with a new keyway, properly staking the keyway with WO 54106914.

Corrective Action References: This issue was entered into the licensee's corrective action program as condition reports CR-GGN-2024-00498, CR-GGN-2024-00518, CR-GGN-2024-00550, and CR-GGN-2024-00552.

Performance Assessment:

Performance Deficiency: Title 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," requires, in part, that licensees have procedures of a type appropriate to the circumstance and be able to accomplish in accordance with these procedures. The failure to properly stake the keyway, as described in procedure 07-S-12-95 in the E22-F012 valve was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failing to stake the keyway for the minimum flow bypass valve prevented the valve from opening and closing resulting in the HPCS system not being able to perform its safety function.

Significance: The inspectors assessed the significance of the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," issued January 1, 2021. The inspectors determined that this finding is of very low safety significance (Green) because the finding did not represent a deficiency affecting design or qualification of a mitigating structure, system, or component; did not involve the loss of a single-train technical specification (TS) system longer than its TS allowed outage time; did not represent the loss of probabilistic risk assessment (PRA) function one train of a multi-train system for greater than its TS allowed outage time; did not represent the loss of PRA function of two separate TS systems for greater than 24 hours; did not represent the loss of a PRA system and/or function as defined in the PRIB or the licensee's PRA for greater than 24 hours; and did not represent the loss of the PRA function of one or more non-TS trains of equipment designated as risk-significant in accordance with the licensee's maintenance rule program for greater than 3 days. Additionally, the finding did not involve external events mitigating systems, the reactor protection system, fire brigade, or flexible coping strategies.

Cross-Cutting Aspect: Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures.

The licensee established Procedure 07-S-12-95, "Electrical Maintenance of Limitorque Actuators," revision 7, as implementing procedure to replace the motor operated actuator for the E22-F012 valve, an activity affecting quality.

Procedure 07-S-12-95, states in step 7.4.3(j) to "stake end of the motor shaft to prevent the key from sliding out."

Contrary to the above on November 27, 2010, the licensee failed to follow step 7.4.3(j) of procedure 07-S-12-95. Specifically, the licensee failed to properly stake the end of the shaft which allowed the keyway to slide out resulting in the minimum flow bypass valve E22-F012 not being able to be opened nor closed. With the valve inoperable, the high-pressure core spray system was unable to perform its safety function.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with section 2.3.2 of the Enforcement Policy.

Failure to Follow Procedures Results in Isolation of the RCIC System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000416/2024001-02 Open/Closed	[H.13] - Consistent Process	71111.24
<p>The inspectors are documenting a self-revealed, Green finding and associated non-cited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures and Drawings," identified when the reactor core isolation cooling system isolated during an instrumentation and controls surveillance. The isolation occurred when technicians failed to adhere to surveillance procedure 06-IC1E31-Q-1003-7 and missed steps while performing the test.</p> <p><u>Description:</u> On February 8, 2024, the control room received alarms indicating the reactor core isolation cooling (RCIC) system was isolated after the RCIC steam supply isolation valves closed. Control room operators declared RCIC inoperable with the system isolated. Investigation by the licensee, determined that during the performance of surveillance Procedure 06-IC-1E31-Q-1003-7, "RHR Area High Temperature Functional Test," revision 100, technicians missed a step that led to the isolation of the RCIC system.</p> <p>The technicians missed step 4.2.1 (6), which states in part "place the RHR ISOLATION BYPASS switch to BYPASS." This step is performed to prevent automatic isolation of the RCIC system during the surveillance test of the residual heat removal room temperature function. Missing this step resulted in the isolation of the RCIC system. The technicians were using the circle and slash human performance tool to track their place in the procedure. The last step circled and slashed was step 4.2.1 (2). After communicating expected alarms with the control room operators, the technicians continued with step 5.0, resulting in the missed step 4.2.1 (6).</p> <p>The inspectors independently reviewed work order (WO) 54079438 and interviewed licensee personnel. The inspectors determined through interviews that the instrumentation and controls (I&C) technicians lost track of their place in the procedure while communicating with the control room about which annunciators would come in during the surveillance. When the I&C technicians resumed work, they started on the wrong page. They missed several steps including the key step of placing the residual heat removal isolation bypass switch in the bypass position. This led directly to the RCIC system isolation when a signal for RHR room high temperature was generated to test the circuit response.</p> <p>Corrective Actions: The licensee operations staff restored the RCIC system using standard operating instructions. The technicians involved in the maintenance were removed from duties and completed remediation actions to restore qualifications. The licensee conducted a maintenance standdown and training focusing on human performance error prevention for all site personnel. The licensee entered this issue into their corrective action program as CR-GGN-2024-00706.</p> <p>Corrective Action References: condition report CR-GGN-2024-00706</p> <p><u>Performance Assessment:</u></p> <p>Performance Deficiency: Title 10 CFR Part 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," requires, in part, that licensees have procedures of a type appropriate to the circumstance and activities shall be accomplished in accordance with these procedures. The failure to follow procedure 06-IC-1E31-Q-1003-07 and missing</p>			

step 4.2.1 (6), “place the RHR ISOLATION BYPASS switch to BYPASS,” was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the I&C technicians failing to perform a step resulted in the isolation of the RCIC system preventing the system from performing its safety function while the system was isolated.

Significance: The inspectors assessed the significance of the finding using IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” issued January 1, 2021. The inspectors determined that this finding is of very low safety significance (Green) significance because the finding did not represent a deficiency affecting design or qualification of a mitigating structure, system, or component; did not involve the loss of a single-train technical specification (TS) system longer than its TS allowed outage time; did not represent the loss of probabilistic risk assessment (PRA) function one train of a multi-train system for greater than its TS allowed outage time; did not represent the loss of PRA function of two separate TS systems for greater than 24 hours; did not represent the loss of a PRA system and/or function as defined in the PRIB or the licensee’s PRA for greater than 24 hours; and did not represent the loss of the PRA function of one or more non-TS trains of equipment designated as risk-significant in accordance with the licensee’s maintenance rule program for greater than 3 days. Additionally, the finding did not involve external events mitigating systems, the reactor protection system, fire brigade, or flexible coping strategies.

Cross-Cutting Aspect: H.13 - Consistent Process: Individuals use a consistent, systematic approach to make decisions. Risk insights are incorporated as appropriate. Specifically, the technicians conducting the surveillance procedure did not employ a consistent and systematic approach when the technicians lost track of their place in the procedure leading to missed steps.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures.

The licensee established Procedure 06-IC-1E31-Q-1003-7, “RHR Area High Temperature Functional Test,” revision 100, as the implementing procedure for testing residual heat removal area high temperature indication, an activity affecting quality.

Procedure 06-IC-1E31-Q-1003-7, step 4.2.1 (6) states “place the RHR ISOLATION BYPASS switch to BYPASS.”

Contrary to the above, on February 8, 2024, I&C technicians failed to follow step 4.2.1 (6) of procedure 06-IC-1E31-Q-1003-7. Specifically, the technicians failed to place the RHR Isolation bypass switch to BYPASS resulting in the isolation of the reactor core isolation cooling RCIC system during performance of the subsequent step in the procedure. Isolation of RCIC required declaring the system inoperable.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On March 15, 2024, the inspectors presented the inservice inspection results to Brad Kapellas, Site Vice President, and other members of the licensee staff.
- On March 15, 2024, the inspectors presented the occupational radiation safety inspection results to Brad Kapellas, Site Vice President, and other members of the licensee staff.
- On April 10, 2024, the inspectors presented the integrated inspection results to Brad Kapellas, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Corrective Action Documents	CR-GGN-	2024-00858	
71111.04	Corrective Action Documents	CR-GGN-	2023-00144, 2023-00360, 2023-00429, 2023-00796, 2023-02479, 2023-14957, 2023-15115, 2023-15661, 2023-17302, 2024-00580	
71111.04	Drawings	M-1061A	Standby Service Water System Unit 1	69
71111.04	Drawings	M-1061B	Standby Service Water System Unit 1	54
71111.04	Drawings	M-1061C	Standby Service Water System Unit 1	38
71111.04	Drawings	M-1061D	Standby Service Water System Unit 1	41
71111.04	Procedures	04-1-01-P81-1	High Pressure Core Spray Diesel Generator	084
71111.05	Corrective Action Documents	CR-GGN-	2024-00324, 2024-00325, 2024-00327, 2024-00329, 2024-00639, 2024-01288	
71111.08G	Corrective Action Documents	CR-GGN-	2018-3862, 2022-01934, 2022-01961, 2022-01989, 2022-02007, 2022-02023, 2022-02025, 2022-02077, 2022-02113, 2022-02127, 2022-02141, 2022-02194, 2022-02316, 2022-02433, 2022-02809, 2022-03621, 2022-03636, 2022-03746, 2022-03797, 2022-04500, 2022-04522, 2022-07842, 2022-08535, 2023-01556, 2024-00043, 2024-00498, 2024-00518, 2024-00550, 2024-00552, 2024-00790, 2024-00820, HQN-2023-03542	
71111.08G	Corrective Action Documents Resulting from Inspection	CR-GGN-	2024-01628, 2024-01629, 2024-01630, 2024-01690, 2024-01692, 2024-01693, 2024-01694, 2024-01739, 2024-01740, 2024-01742	
71111.08G	Procedures	01-S-07-5	Control Of Special Processes Safety Related	19
71111.08G	Procedures	CEP-NDE-0100	Administration And Control Of NDE	19
71111.08G	Procedures	CEP-NDE-0110	Certification of NDE Personnel	13
71111.08G	Procedures	CEP-NDE-0400	Ultrasonic Examination	9
71111.08G	Procedures	CEP-NDE-0404	Manual Ultrasonic Examination of Ferritic Piping Welds (ASME XI)	9
71111.08G	Procedures	CEP-NDE-0423	Manual Ultrasonic Examination of Austenitic Piping Welds (ASME XI)	9

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.08G	Procedures	CEP-NDE-0641	Liquid Penetrant Examination (PT) for ASME Section XI	10
71111.08G	Procedures	CEP-NDE-0901	VT-1 Examination	6
71111.08G	Procedures	CEP-NDE-0902	VT-2 Examination	10
71111.08G	Procedures	CEP-NDE-0903	VT-3 Examination	9
71111.08G	Procedures	DR-ECH-EN_IS_109	Compressed Gas Cylinder Handling and Storage	7
71111.08G	Procedures	DR-ECH-WPS-CS-1/1-A	CEP-WP-002 Welding Procedure Specification	0
71111.08G	Procedures	DR-ECH-WPS_CS_1_1_B—000	CEP-WP-002 Welding Procedure Specification	0
71111.08G	Procedures	DR-ECH-WPS_CS_1_1_C—000	CEP-WP-002 Welding Procedure Specification	0
71111.08G	Procedures	EN-DC-127	Control of Hot Work and Ignition Sources	22
71111.08G	Procedures	EN-DC-161	Control of Combustibles	26
71111.08G	Procedures	EN-IS-109	Compressed Gas Cylinder Handling and Storage	7
71111.08G	Work Orders	WO	541768, 547229-09, 547229-12, 547233-06, 547233-10, 547235-03, 547325, 52937683-14, 52946735-52, 54019147, 54100855, 54113910-8, WTGGN-2022-00014, WTGGN-2022-00378	
71111.12	Corrective Action Documents	CR-GGN-	2024-00032, 2024-00055, 2024-00498, 2024-00550, 2024-00552, 2024-01129	
71111.12	Work Orders	WO	151684, 348214, 53010916, 54098390, 54100584, 54106914	
71111.13	Corrective Action Documents	CR-GGN-	2024-00032, 2024-00639, 2024-00790, 2024-00820	
71111.13	Procedures	EN-OP-119	Protected Equipment Postings	17
71111.13	Work Orders	WO	54113910	
71111.15	Corrective Action Documents	CR-GGN-	2014-01951, 2016-02017, 2018-04973, 2024-00259, 2024-00881, 2024-01256, 2024-01399, 2024-01963, 2024-01977	
71111.15	Work Orders	WO	54121042	
71111.18	Engineering Changes	0054117242	Alternative Motor for Fuel Pool Cooling & Cleanup Pump 1G41001B	02/25/2024

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.18		EC64812	Temporary Modification Evaluation of Standby Service Water System to Allow for Manual control of SSW "A" and SSW "B" in Cold Weather Conditions During an Outage	02/01/2017
		EC54122604	Change Recirculation Pump Seal Leakage Alarm Setpoint	03/22/3024
71111.18	Miscellaneous	Q1E12C005A	Centrifugal Pump Test Report	11/18/1981
71111.18	Procedures	EN-DC-136	Temporary Modifications	23
71111.18	Work Orders	0054117242,		
71111.24	Corrective Action Documents	CR-GGN-	2024-00706, 2024-00790, 2024-00820, 2024-01331, 2024-01833	
71111.24	Work Orders	WO	416746, 52925918, 53010351, 53011060, 53014465, 53020792, 54079438, 54100584, 54113910, 54122845	
71124.01	Corrective Action Documents	CR-GGN-	2023-01296, 2023-01371, 2023-01372, 2023-01409, 2023-01878, 2023-02274, 2023-02275, 2023-02276, 2023-02656, 2023-02729, 2023-14011, 2023-14357, 2023-14443, 2023-14575, 2023-14600, 2023-14660, 2023-15505, 2023-15796, 2023-15903, 2023-15921, 2023-16113, 2023-17059, 2023-17344, 2023-17530, 2023-17602, GGN-2024-00282, 2024-00399, 2024-00424	
71124.01	Corrective Action Documents Resulting from Inspection	CR-GGN-	2024-01754, 2024-01835, 2024-01836	
71124.01	Miscellaneous		Refueling Outage 23 Outage ALARA Report February 26, 2022 to May 2, 2022	08/09/2022
71124.01	Miscellaneous	208' Aux Pool Invent	Status Board for 208' Auxiliary Building Pools	02/15/2024
71124.01	Miscellaneous	CTMT208POOLS	Status Board for 208' Containment Pools	02/15/2024
71124.01	Procedures	08-S-01-28	Use and Control of Temporary Shielding	13
71124.01	Procedures	EN-RP-100	Radiation Worker Expectations	14
71124.01	Procedures	EN-RP-101	Access Control for Radiologically Controlled Areas	17
71124.01	Procedures	EN-RP-106	Radiological Survey Documentation	8
71124.01	Procedures	EN-RP-106-01	Radiological Survey Guidelines	6
71124.01	Procedures	EN-RP-108	Radiation Protection Posting	23
71124.01	Procedures	EN-RP-110	ALARA Program	14

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71124.01	Procedures	EN-RP-121	Radioactive Material Control	19
71124.01	Procedures	EN-RP-123	Radiological Controls for Highly Radioactive Objects	1
71124.01	Procedures	EN-RP-131	Air Sampling	18
71124.01	Procedures	EN-RP-152	Conduct of Radiation Protection	8
71124.01	Radiation Surveys	GGN-2304-00083	1A514 - RWCU Sample Station	04/05/2023
71124.01	Radiation Surveys	GGN-2403-00872	1A414RM - 170' CTMT RWCU Heat Exchanger Room	03/12/2024
71124.01	Radiation Surveys	GGN-2403-00970	1A414RM - 170' CTMT RWCU Heat Exchanger Room	03/14/2024
71124.01	Radiation Surveys	GGN-AS-031424-0555	Lapel Sample Report	03/14/2024
71124.01	Radiation Surveys	GGN-AS-031424-0557	Particulate Sample Report	03/14/2024
71124.01	Radiation Surveys	GGN-AS-031424-0558	Particulate Sample Report	03/14/2024
71124.01	Radiation Surveys	GGN-AS-031424-0559	Lapel Sample Report	03/14/2024
71124.01	Radiation Surveys	GGN-AS-031424-0560	Lapel Sample Report	03/14/2024
71124.01	Radiation Work Permits (RWP)	2023-1002	Ops Rounds, Surveillances, Tagouts, and Tours	0
71124.01	Radiation Work Permits (RWP)	2023-1004	General Maintenance Activities and Support Work	0
71124.01	Radiation Work Permits (RWP)	2023-1303	Planned or Forced Outage - Work Activities in all plant areas (except Drywell) - Turbine Bldg., Auxiliary Bldg., Containment, Rad Waste.	1
71124.01	Radiation Work Permits (RWP)	RWP 20241400	RP Coverage for Refuel Floor Activities	0
71124.01	Radiation Work Permits (RWP)	RWP 20241508	Under Vessel Maintenance	3
71124.01	Radiation Work Permits (RWP)	RWP 20241966	Pipe repair in RWCU HX Room and Support Work	0 and 1
71124.01	Self-Assessments	LO-GLO-2022-	Pre-NRC Inspection. Focused Self-Assessment.	12/18/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		00114-00001	Radiological Hazard Assessment and Exposure Controls. IP 71124.01	
71124.03	Corrective Action Documents		2022-02467, 2022-05107, 2022-05702, 2022-05704, 2022-05821, 2022-5874, 2022-06207, 2023-00912, 2023-01057, 2023-14233, 2023-15789, 2023-16092, 2023-16910, 2024-00709	
71124.03	Miscellaneous		Breathing Air Sample P52-F102 for Refueling Outage 24 Under Vessel Work	02/26/2024
71124.03	Miscellaneous		Breathing Air Sample P52-F064 for Refueling Outage 24 Turbine Bldg. 166' Sandblast Decontamination Activities	02/28/2024
71124.03	Miscellaneous	23-504-01	Laboratory Report Compressed Air/Gas Quality Testing Report 230112106-00 for BARON II SN 30T689509	01/12/2023
71124.03	Miscellaneous	23-504-04	Laboratory Report Compressed Air/Gas Quality Testing Report 230411076-00 for EAGLE AIR BLACKHAWK SN: 95570401	04/11/2023
71124.03	Miscellaneous	23-504-10	Laboratory Report Compressed Air/Gas Quality Testing Report 231012026-00 for Eagle Air BHB1053G2U	10/12/2023
71124.03	Miscellaneous	24-504-01	Laboratory Report Compressed Air/Gas Quality Testing Report 240109071-01 for Eagle Air BHB105362U	01/09/2024
71124.03	Miscellaneous	LO-GLO-2022-00115	In Plant Airborne Radioactivity Control and Mitigation Inspection Assessment (IP 71124.03)	12/18/2023
71124.03	Procedures	EN-RP-131	Air Sampling	18
71124.03	Procedures	EN-RP-501	Respiratory Protection Program	8
71124.03	Procedures	EN-RP-502	Inspection and Maintenance of Respiratory Protection Equipment	10
71124.03	Procedures	EN-RP-502-02	Flow Testing MSA Breathing Apparatus	0
71124.03	Procedures	EN-RP-504	Breathing Air	4
71124.03	Radiation Surveys	GGN-AS-040523-0417	Containment 185-foot elevation - Replace pressure regulator behind RWCU sample station	04/05/2023
71124.03	Radiation Surveys	GGN-AS-080723-0897	Radwaste 136-foot elevation - Mechanical maintenance to finish welding valve #SG17-F020	08/07/2023
71124.03	Radiation Surveys	GGN-AS-122523-1483	Containment 185-foot elevation - RWCU Strainer Install	12/25/2023
71124.03	Radiation	GGN-AS-122523-	Containment 185-foot elevation - RWCU Strainer Install	12/25/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Surveys	1484		
71124.03	Radiation Surveys	GGN-AS-122523-1485	Containment 185-foot elevation - RWCU Strainer Install	12/25/2023
71124.03	Radiation Surveys	GGN-AS-122523-1486	Containment 185-foot elevation - RWCU Strainer Install	12/25/2023
71124.03	Radiation Work Permits (RWPs)	2023-1303	Planned or Forced Outage- Work Activities in all plant areas (except Drywell)- Turbine Bldg., Auxiliary Bldg., Containment, Rad Waste.	1
71124.03	Work Orders	WO	52973125-01, 52973254-01, 52973254-03, 52973892-01, 52992146-01, 52994171-01, 52994171-01, 53014928-01, 54069234-01, 54085496-01	
71124.08	Miscellaneous	GGN-2024-041	Main Steam Relief Valve shipping package - LSA I	03/11/2024
71124.08	Radiation Surveys	GGN-2403-00780	DOT of transport vehicle and package survey	03/11/2024
71151	Miscellaneous	3Q23 NRC PI	NRC Performance Indicator Technique/Data Sheet	10/10/2023
71151	Miscellaneous	4Q23 NRC PI	NRC Performance Indicator Technique/Data Sheet	01/08/2024
71152A	Corrective Action Documents	CR-GGN-	2023-00190, 2023-00264, 2023-00721, 2023-01266, 2023-01596, 2023-01762, 2023-02174, 2023-02637, 2023-13159, 2023-13172, 2023-13292, 2023-13534, 2023-13579, 2023-13602, 2023-15489, 2023-16219, 2023-16442, 2023-17044, 2024-00046, 2024-00267,	