UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

May 8, 2024

Edward Pigott
Site Vice President
Duke Energy Carolinas, LLC
12700 Hagers Ferry Road
Huntersville, NC 28078

SUBJECT: MCGUIRE NUCLEAR STATION – INTEGRATED INSPECTION REPORT 05000369/2024001 AND 05000370/2024001 AND 07200038/2024001

Dear Edward Pigott:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at McGuire Nuclear Station. On May 2, 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.

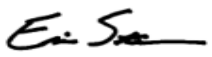
One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation 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 II; the Director, Office of Enforcement; and the NRC Resident Inspector at McGuire 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 II; and the NRC Resident Inspector at McGuire 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 Stamm, Eric
on 05/08/24

Eric J. Stamm, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos. 05000369 and 05000370 and 07200038
License Nos. NPF-9 and NPF-17

Enclosure:
As stated

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SUBJECT: MCGUIRE NUCLEAR STATION – INTEGRATED INSPECTION REPORT 05000369/2024001 AND 05000370/2024001 AND 07200038/2024001 DATED MAY 8, 2024

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000369, 05000370 and 07200038
License Numbers:	NPF-9 and NPF-17
Report Numbers:	05000369/2024001, 05000370/2024001 and 07200038/2024001
Enterprise Identifier:	I-2024-001-0025; I-2024-001-0044
Licensee:	Duke Energy Carolinas, LLC
Facility:	McGuire Nuclear Station
Location:	Huntersville, North Carolina
Inspection Dates:	January 1, 2024, to March 31, 2024
Inspectors:	C. Safouri, Senior Resident Inspector F. Young, Resident Inspector P. Cooper, Senior Reactor Inspector M. Magyar, Reactor Inspector
Approved By:	Eric J. Stamm, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at McGuire 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 Assess Drill and Exercise Performance PI Opportunity			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Emergency Preparedness	Green NCV 05000369,05000370/2024001-02 Open/Closed	[P.6] - Self-Assessment	71114.06
The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.47(b)(14) when the licensee's critique process failed to identify a weakness associated with the simulator control room crew failure to follow emergency operating procedures (EOPs), as well as the licensee's failure to identify a weakness associated with a risk significant planning standard (RSPS). As a result, emergency action levels were rendered ineffective, and the licensee improperly characterized the failed Drill and Exercise Performance (DEP) performance indicator (PI) opportunity as a success during a limited participation drill.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000369/2024001-01	Unexpected Motor Trip when 1B1 KC Pump Motor Lead Shorted to Electrical Connection Box	71111.12	Open
LER	05000369/2023-001-00	LER 2023-001-00 for McGuire Nuclear Station, Unit 1, Automatic Actuation of the 1A Motor Driven Auxiliary Feedwater Pump Due to Human Error	71153	Closed

PLANT STATUS

Unit 1 operated at or near rated thermal power for the entire inspection period.

Unit 2 operated at or near rated thermal power for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors 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 severe thunderstorm warning, on January 9, 2024.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

(1) Unit 1 turbine driven auxiliary feedwater (TDCA) system, on February 1, 2024
(2) Unit 2 train A safety injection system, on March 18, 2024
(3) Unit 2 nuclear service water system, on March 28, 2024

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (6 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) Unit 2 safety-related emergency switchgear and associated HVAC rooms, on January 9, 2024

(2) Unit 2 emergency diesel generators (D/Gs) during maintenance window, on January 11, 2024
(3) Unit 1 auxiliary feedwater pump room, on January 26, 2024
(4) Service building, on February 11, 2024
(5) Auxiliary building ventilation equipment shared area, 767 ft elevation, on March 19, 2024
(6) Unit 1 and Unit 2 residual heat removal pump rooms, on March 29, 2024

Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated the onsite fire brigade training and performance during an announced fire drill, on January 20, 2024. The fire scenario involved a fire on one of the diesel-powered instrument air compressors, which is located outside the turbine building.

71111.06 - Flood Protection Measures

Flooding Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated internal flooding mitigation protections in the Unit 1 and Unit 2 D/G rooms.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the control room during Unit 2 main turbine valve movement test, on March 10, 2024.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (1 Sample)

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

(1) Unit 1 train B component cooling water pump #1 (1B1 KC pump) motor overcurrent trip, on February 26, 2024

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

(1) Unit 1 train B D/G fuel oil filter, 1FDFL0049, commercial grade dedication, on January 30, 2024

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (5 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) Work order (WO) 20628293, Unit 2 loop B reactor coolant pump underfrequency channel #2 relay failed to drop out on test signal, on January 4, 2024
(2) Equipment protection plan during planned extended maintenance on Unit 2 train A D/G, on January 9, 2024
(3) Equipment protection plan during planned maintenance on train A of shared control room ventilation equipment, on January 24, 2024
(4) Equipment protection plan during planned extended maintenance on Unit 1 train B D/G, on February 1, 2024
(5) Equipment protection plan and risk assessment during emergent repairs of train A control room area chiller due to oil leak, on March 21, 2024

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (6 Samples)

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

(1) Unit 2 containment ventilation unit condensate drain tank elevated input to the drain tank, on January 24, 2024
(2) Unit 2 train B centrifugal charging pump (NV) elevated mechanical seal leakage while pump is secured, on February 5, 2024
(3) Unit 1 train B NV cooling water leak to bearing lube oil cooler, on February 11, 2024
(4) Unit 1 TDCA pump discharge control valve manual loaders indicate less than 100 percent open, on February 20, 2024
(5) Unit 1 and Unit 2 D/G lube oil consumption evaluation, on February 20, 2024
(6) Unit 2 loop A steam generator blowdown sample header containment isolation valve (CIV), 2NM-191B, not stroke time tested due to upstream CIV failure, on March 22, 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) (7 Samples)

(1) IP/2/A/4971/008A, "Diesel Generator 2A Protective Relay Logic Test," following relay calibration, on January 10, 2024
(2) WO 20602529, maintenance functional testing of train A control room chiller system following yearly inspection/maintenance, on January 25, 2024
(3) WO 20566004, Unit 1 train A D/G control power preventative maintenance, on January 25, 2024

(4) PT/1/A/4350/019B, "1B Diesel Generator and Voltage Regulator Benchmark Comparison Test," following mechanical governor replacement, on February 2, 2024
(5) PT/1/A/4350/017B, "1B Diesel Generator Fuel Oil Transfer Pump Performance Test," following fuel oil backflow preventer maintenance, on February 2, 2024
(6) WO 20575292, Unit 2 train A NV preventative maintenance window, on February 13, 2024
(7) WO 20646896, maintenance functional testing of Unit 1 TDCA pump following oil change, on February 22, 2024

Surveillance Testing (IP Section 03.01) (3 Samples)

(1) PT/2/A/4403/007, "RN Train 2A Flow Balance," on February 16, 2024
(2) PT/1/A/4600/014G, "NIS Power Range N-44 Channel Operational Test," on March 25, 2024
(3) PT/2/A/4971/021, "Reactor Coolant Pump (RCP) Undervoltage/Underfrequency Functional Test," on March 27, 2024

Inservice Testing (IST) (IP Section 03.01) (1 Sample)

(1) PT/2/A/4255/004A and PT/2/A/4255/004B, "Unit 2 Steam Generator Power Operated Relief Valve Stroke Timing – Quarterly," on March 11, 2024

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

(1) McGuire building #2 triennial testing of FLEX Caterpillar 600V diesel 500kW generator, on March 5, 2024

71114.06 - Drill Evaluation

Required Emergency Preparedness Drill (1 Sample)

(1) The inspectors evaluated an emergency preparedness drill that consisted of a loss of offsite power, followed by a loss of coolant accident, containment breach, and loss of all AC power, on January 17, 2024.

Additional Drill and/or Training Evolution (1 Sample)

The inspectors evaluated:

(1) Licensed operator continual training active simulator exam that consisted of a pressurizer power operated relief valve failure, followed by a steam generator tube rupture, and failure of charging pump suction swap over, on January 31, 2024

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) (2 Samples)

(1) Unit 1 (January 1, 2023, through December 31, 2023)
(2) Unit 2 (January 1, 2023, through December 31, 2023)

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

(1) Unit 1 (January 1, 2023, through December 31, 2023)
(2) Unit 2 (January 1, 2023, through December 31, 2023)

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

(1) Unit 1 (January 1, 2023, through December 31, 2023)
(2) Unit 2 (January 1, 2023, through December 31, 2023)

71152A - Annual Follow-up Problem Identification and Resolution

Annual Follow-up of Selected Issues (Section 03.03) (1 Sample)

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

(1) Nuclear condition report 02499013, investigation and repair of Unit 1 train A D/G heat exchanger nuclear service water flow cooling flow transmitter, 1RNFT5220, on March 28, 2024

71152S - Semiannual Trend Problem Identification and Resolution

Semiannual Trend Review (Section 03.02) (1 Sample)

(1) The inspectors reviewed the licensee's corrective action program to identify potential trends in Unit 2 containment lower compartment ventilation system aggregate deficiencies, relative to Technical Specification 3.6.5, "Containment Air Temperature," that might be indicative of a more significant safety issue.

71153 - Follow Up of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event report (LER):

(1) LER 05000369/2023-001-00, "Automatic Actuation of the 1A Motor Driven Auxiliary Feedwater Pump Due to Human Error" (ADAMS Accession No. ML23347A120). The inspection conclusions associated with this LER are documented in this report under Inspection Results Section 71153. This LER is Closed.

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855 - Operation Of An Independent Spent Fuel Storage Installation (ISFSI)

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) 2690, "Inspection Program for Storage of Spent Reactor Fuel and Reactor-Related Greater-than-Class C Waste at Independent Spent Fuel Storage Installations (ISFSI) and for 10 CFR Part 71 Transportation Packaging's."

Operation Of An ISFSI (1 Sample)

(1) From February 12 - 15, 2024, the inspectors performed a review of the licensee's ISFSI activities to verify compliance with regulatory requirements. During the on-site inspection, the inspectors observed and reviewed licensee activities in each of the five safety focus areas including occupational exposure, public exposure, fuel damage, confinement, and impact to plant operations.

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. Additionally, the inspectors performed independent walkdowns of the heavy load lifting equipment and the ISFSI haul path. The inspectors also performed an independent radiation survey of the ISFSI pad.

INSPECTION RESULTS

Unresolved Item (Open)	Unexpected Motor Trip when 1B1 KC Pump Motor Lead Shorted to Electrical Connection Box URI 05000369/2024001-01	71111.12

Description: On December 10, 2023, at 9:48 p.m., the Unit 1 train B component cooling water pump #1 (1B1 KC pump) was started and placed into service. Approximately five minutes later, the associated breaker tripped on overcurrent. Field operators observed smoke coming from the 1B1 KC pump motor electrical junction box, and operations declared the pump inoperable. During subsequent repairs and investigation, it was discovered that one phase of the motor leads had shorted to the electrical junction box. The bolted splice connection between the incoming power cable and motor failed when a path to ground existed through insulating high voltage electrical tape around the connection.

Of note, the 1B1 KC pump motor was replaced on October 3, 2020, and did not demonstrate related performance issues prior to the failure. On November 28, 2023, the licensee performed a planned electrical inspection of the motor and the spliced connection in the electrical junction box. During this inspection, maintenance personnel accessed the junction box and removed, inspected, and returned the existing motor lead connections. No discrepancies associated with the cable splice or electrical insulation were noted during the inspection by the licensee. After completing the inspection, 1B1 KC pump was successfully run for approximately five minutes for retest. On December 8, 2023, beginning at 9:45 p.m., 1B1 KC pump was in service for approximately 90 minutes to complete a quarterly inservice

test and no discrepancies were noted. The next pump start was the failure that occurred on December 10, 2023, totaling approximately 95 cumulative minutes of pump operation after the electrical motor inspection.

The inspectors opened an unresolved item to review new information discussed in the licensee's pending causal evaluation checklist and perform a more detailed review of previous licensee actions. Those additional reviews may include, but not be limited to, quality of procedures for the initial installation and subsequent motor inspection, adherence of personnel to procedural guidance for initial installation and subsequent motor inspection, and adequacy of the cable splice design for its safety function.

Planned Closure Actions: NRC inspectors will review actions related to nuclear condition report (NCR) 02497331, including cause investigation checklists, and determine if a performance deficiency occurred.

Licensee Actions: The licensee restored operability of the 1B1 KC pump within the technical specification allowed outage time following discovery of the failure. Any remaining actions will be taken in accordance with licensee corrective action program.

Corrective Action References: NCR 02497331

Failure to Properly Assess Drill and Exercise Performance PI Opportunity			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Emergency Preparedness	Green NCV 05000369,05000370/2024001-02 Open/Closed	[P.6] - Self-Assessment	71114.06

The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.47(b)(14) when the licensee's critique process failed to identify a weakness associated with the simulator control room crew failure to follow emergency operating procedures (EOPs), as well as the licensee's failure to identify a weakness associated with a risk significant planning standard (RSPS). As a result, emergency action levels were rendered ineffective, and the licensee improperly characterized the failed Drill and Exercise Performance (DEP) performance indicator (PI) opportunity as a success during a limited participation drill.

Description: On February 15, 2024, McGuire Nuclear Station completed their emergency preparedness (EP) critique report associated with the limited participation EP drill conducted on January 17, 2024. The McGuire EP drill included the following events: loss of offsite power (LOOP), loss of coolant accident (LOCA), and containment breach. The containment breach (via containment penetration failure) was the initiating condition for a site area emergency (SAE) under emergency action level (EAL) FS1.1, "NCS Barrier Loss and Containment Barrier Loss." From a drill scenario progression perspective, the technical support center (TSC) personnel were expected to identify and classify this escalation criteria based on: 1) decreasing containment pressure and 2) increasing unit vent gas radiation monitor (1EMF-36).

However, the drill scenario did not progress as expected due to human performance issues associated with the simulator control room operators. Following a LOOP and/or safety injection (SI), several expected system interactions occur, such as isolating/securing sample flow to various radiation monitors. Following the LOOP, operators properly followed the

EOPs, which directed them to perform EP/1/A/5000/G-1 Enclosure 13, "Generic Enclosures - VC and VA System Operation," which contained steps that restart several radiation monitor sample blowers, including the sample blower for 1EMF-36. Later in the EP drill scenario, a LOCA/SI occurred which isolated/secured sample flow once again; however, operators did not reperform the enclosure and therefore, never re-established sample flow through radiation monitor 1EMF-36. This performance issue degraded the emergency response organization's ability to detect several EALs (e.g., FS1.1 or RS1.1). This deficiency is associated with RSPS 10 CFR 50.47(b)(4), which requires, "A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee..."

Following issuance of the EP Critique Report, the NRC resident inspectors interviewed several drill participants to ascertain more information on the sequence of events and potential deficiencies. The NRC identified a deficiency associated with the simulator control room operators' understanding of procedural adherence and execution standards. Specifically, during the drill, the simulator control room crew incorrectly believed that since they had already performed the generic enclosure earlier in the drill following the LOOP, they did not need to reperform the generic enclosure following the SI (i.e., simulator control room operators failed to recognize that sample flow should have again been re-established). This was verbally critiqued during the operations critique immediately following the drill. However, the licensee captured this deficiency within the EP Critique Report in the following manner: "The simulator control room crew did not prioritize the realignment of power to the unit vent radiation monitor sample pumps." The associated corrective actions mirrored this language, and the NRC determined that the licensee did not adequately capture the deficiency associated with the simulator control room crew.

Following the containment breach initiating condition, the TSC and control room recognized a decreasing containment pressure trend. Due to the operator performance deficiency discussed above, the TSC staff were unaware that several radiation monitors were rendered nonfunctional; therefore, the TSC did not have the associated increasing trend on radiation monitor 1EMF-36. The emergency response facilities assessed the available data and attributed the decreasing containment pressure trend with the actuation of the containment air return exchange system. The EP controllers/evaluators recognized the TSC personnel were not going to make the SAE EAL FS1.1 classification within the 15-minute requirement and intervened by injecting radiation monitor 1EMF-36 into alarm. Following controller intervention, the TSC recognized the potential for a containment breach and made the associated declaration. The following is a timeline summary:

- 1024 – [Original T-0] Containment penetration breach initiated.
- 1027 – Emergency operations facility Director informs the Emergency Coordinator (EC) that containment pressure is lowering, EC discusses previous actions to validate expected containment response.
- 1030 – TSC Operations Manager noted containment pressure was lowering, discussed how it could still be in the range of expected response based on varying size of LOCAs and dependent on containment ventilation response.
- 1030 – TSC solicits security officers and radiation protection (RP) teams in the field for indications of a containment leak (steam, noise, increased radiation readings, etc.). All field reports report back negative for indications.

- 1034 – [Controller Intervention, "Revised T-0"] 1EMF-36 returned to service and alarms, this is a diverse indication that containment has been breached along with a lowered containment pressure.
- 1036 – TSC recognizes containment is breached based on 1EMF-36 alarms concurrent with lowering containment pressure.
- 1045 – EC, Assistant EC, TSC Operations Manager agree that SAE EAL criteria was met.
- 1048 – EC declares SAE for EAL FS1.1.

As part of the critique and evaluation process, the licensee concluded that the "T-0" for the TSC to recognize and classify a SAE should be revised to when 1EMF-36 was injected by the controller. Furthermore, the licensee concluded that since the TSC declared a SAE within 15 minutes of the "revised T-0," the DEP PI Opportunity was deemed successful. The NRC inspectors noted that the controller intervention was not clearly captured and evaluated within the critique report. Moreover, the NRC determined that the DEP PI opportunity should have been deemed a failure based on controller intervention. Nuclear Energy Institute (NEI) 99-02, Revision 7, "Regulatory Assessment Performance Indicator Guideline," states: "If a controller intervenes (e.g., coaching, prompting) with the performance of an individual to make an independent and correct classification, notification, or [Protective Action Recommendation], then that DEP PI opportunity shall be considered a failure." Additional information can also be found under Reactor Oversight Process (ROP) Frequently Asked Questions (FAQ) No. 401, dated July 21, 2005.

Corrective Actions: Based on the change to a DEP failure, the licensee has performed remediation in accordance with applicable procedures. Operations distributed a crew learning discussing the importance of performing EP/1/A/5000/G-1 Enclosure 13. Additionally, the licensee initiated a causal evaluation to determine additional drivers and actions needed.

Corrective Action References: NCRs 02508235, 02510600

Performance Assessment:

Performance Deficiency: The licensee's failure during the critique process to identify a weakness associated with a RSPS when the control room simulator crew rendered several EALs ineffective and to correctly conclude the DEP PI opportunity a failure (as determined by the NRC), due to controller intervention, was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the emergency response organization (ERO) performance attribute of the Emergency Preparedness cornerstone and adversely affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the licensee’s ability to ensure that adequate measures will be taken to protect the health and safety of the public is degraded when emergency response organization weaknesses are not adequately identified for correction.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix B, “Emergency Preparedness SDP.” Utilizing Table 5.14-1, "Significance Examples of §50.47(b)(14)," and Figure 5.14-1, "Significance Determination for Critique Findings," the NRC determined that since this is a critique finding associated with a limited participation drill, this represents a finding of very low safety significance (Green).

Cross-Cutting Aspect: P.6 - Self-Assessment: The organization routinely conducts self-critical and objective assessments of its programs and practices. The licensee did not adequately assess the overall impact of deficiencies during the EP drill and its impact on the licensee's emergency response capability.

Enforcement:

Violation: 10 CFR 50.47(b)(14) requires, "Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected."

Contrary to the above, on February 15, 2024, the licensee failed to identify and correct deficiencies that occurred during the EP drill. Specifically, the licensee did not identify a weakness associated with RSPS 10 CFR 50.47(b)(4) when the control room simulator crew rendered several EALs ineffective; and incorrectly concluded that the DEP PI opportunity was a success, rather than a failure (as determined by the NRC), due to controller intervention.

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

Minor Violation	71153

Failure to Follow Procedure Step Resulting in Unit 1 Train A Auxiliary Feedwater Pump Auto-start

Minor Violation: This minor violation is being documented as a result of inspection associated with licensee event report (LER) 05000369/2023-001-00, "Automatic Actuation of the 1A Motor Driven Auxiliary Feedwater Pump Due to Human Error," which was submitted to the NRC on December 13, 2023.

On October 18, 2023, during the Unit 1 refueling outage while in mode 5, the licensee was performing PT/0/4600/012A, "Train A Reactor Trip Breakers Actuating Device Operational Test for Manual Trip Function." Upon reaching step 12.3.1 which read, "Remove fuse FU1 from rear of REACTOR TRIP BREAKER CABINET 2 RTA BYA. (See Enclosure 13.1 for location)," technicians proceeded to the incorrect cabinet, the 1A solid state protection system cabinet, and removed a fuse that they believed to be correct. This action deenergized a set of relays and started the Unit 1 train A motor driven auxiliary feedwater pump. The licensee responded to the event by verifying the proper response of plant equipment, placing the event in their corrective action program, and notifying the NRC of the actuation of the system in accordance with 10 CFR 50.72 and 50.73. The event had no adverse impact to plant equipment and occurred at a time when the 1A CA pump was not required by technical specifications.

10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” requires, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." Contrary to the above, on October 18, 2023, the licensee failed to accomplish step 12.3.1 of PT/0/4600/012A in accordance with procedural direction.

Screening: The inspectors determined the performance deficiency was minor. The inspectors determined that the violation screened to minor significance after answering the three screening questions in IMC 0612, Appendix B, "Issue Screening Directions." The performance deficiency is not reasonably viewed as a precursor to a more significant event. The performance deficiency would not have led to a more significant safety concern if left uncorrected. Although the performance deficiency was associated with the human performance attribute of the mitigating systems cornerstone, the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage) was not adversely affected. Specifically, the performance deficiency had little to no impact on the availability and reliability of the 1A CA pump and operability was not affected as it was not required by technical specifications under the current plant conditions.

Enforcement: The licensee has taken actions to restore compliance and documented the issue in NCR 02491016. This failure to comply with 10 CFR Part 50, Appendix B, Criterion V, constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On May 2, 2024, the inspectors presented the integrated inspection results to Edward Pigott and other members of the licensee staff.

THIRD PARTY REVIEWS

Inspectors reviewed Nuclear Safety Review Board reports that were issued during the inspection period.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.01	Procedures	RP/0/A/5700/006	Natural Disasters	36
		RP/0/B/5700/027	Severe Weather Preparation	14
71111.04	Procedures	OP/2/A/6500//015 A	Unit 2 Auxiliary Building Rounds Configuration Control	4
		PT/2/A/4600/003 A	Semi-Daily Surveillance Items	158
71111.06	Calculations	MCC-1206.47-69-1001	Auxiliary Building Flooding Analysis	0
	Corrective Action Documents Resulting from Inspection	Nuclear Condition Report(s)	02508641	
	Drawings	MC-1231-13	Emergency Diesel Generator Building Units 1&2 Floor Drain Layout	2
71111.11Q	Miscellaneous	AD-OP-ALL-0210	Operational Risk Mitigation Plan: Unit 2 Turbine Valve Movement Test	02/21/2024
	Procedures	AD-OP-ALL-0203	Reactivity Management	16
		OP/2/A/6100/003	Controlling Procedure for Unit Operation	205
		PT/2/A/4250/004A	Turbine Valve Movement Test	70
71111.12	Corrective Action Documents	Nuclear Condition Report(s)	02497331	
	Drawings	MCM 1301.00-0145.001	Diesel Generator Engine Fuel Oil Duplex Filter Housing Part No. 3877 427D	2
	Miscellaneous	CGD-2018.02-00-0048	Duke Energy Commercial Grade Item Technical Evaluation Q-Level 1: Element, Filter, Filtrec, CG055	1
		CGPA-2000.00-00-0119	Inspection and Test Requirements for Element, Filter, Filtrec, CG055, 3 Micron, for FD System	3
	Procedures	PT/0/A/4350/021	Nordberg Diesel Engine 2 Year Periodic Maintenance	44
		TE-MN-ALL-0002	Foreign Material Exclusion Level and Controls Screening	3
	Work Orders		20607296	
71111.13	Miscellaneous		MNS Operational Focus Meeting Package	01/09/2024
	Procedures	AD-OP-ALL-0120	Severe Weather Preparations and Considerations	0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AD-WC-ALL-0240	On-Line Risk Management Process	4
		AD-WC-ALL-0410	Work Activity Integrated Risk Management	14
		CSD-WC-MNS-0240-00	McGuire Nuclear Station PRA: ERAT Guidance	2
		OP/1/A/6350/002	Diesel Generator	138
71111.15	Corrective Action Documents	Nuclear Condition Report(s)	02495658, 02497281	
		Nuclear Condition Report(s)	2504162, 2504349	
		Nuclear Condition Report(s)	02498709	
		Work Requests	20186845, 20263096	
	Miscellaneous	AD-OP-ALL-1000	Adverse Condition Monitoring and Contingency Plan - U2 VUCDT Level & 2A CFAE sump level	01/05/2024
		AD-OP-ALL-1000	Adverse Condition Monitoring and Contingency Planning Form: 2B NV Pump Seal Leakage	1
		Adverse Condition Monitoring Plan	1A, 1B, 2A & 2B Emergency DG Lube Oil Level	
		MCM 1201.05-0228.001	Centrifugal Charging Pump Vendor Manual	73
	Work Orders		20643964	
		Work Request	20260841	
71111.24	Corrective Action Documents	Nuclear Condition Report	02306053	
	Drawings	MC-1777-01.04	C/D Diesel Generator 1A Control Panel Wiring Sect 5	43
		MCEE-0120-01.01	Elementary Diagram Diesel Generator 1A Start Circuit	10
		MCFD-1574-01.00	Flow Diagram of Nuclear Service Water System - RN	35
		MCFD-2574-01.01	Flow Diagram of Nuclear Service Water System (RN)	44
		MCFD-2574-02.00	Flow Diagram of Nuclear Service Water System - RN	30
		MCFD-2574-02.01	Flow Diagram of Nuclear Service Water System - RN	13
		MCFD-2574-03.00	Flow Diagram of Nuclear Service Water System - RN	21B
		MCFD-2574-03.01	Flow Diagram of Nuclear Service Water System - RN	13
		MCFD-2574-04.00	Flow Diagram of Nuclear Service Water System - RN	34A

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		MCFD-2574-05.00	Flow Diagram of Nuclear Service Water System (RN)	7
	Procedures	IP/0/A/3190/030	Molded Case Circuit Breaker Inspection and Functional Test	55
		IP/0/A/3250/016D	D/G Woodward Controls Alignment Following Replacement	019
		MCS-1574.RN-00-0001	Design Basis Specification for the RN System	64
		MP/0/A/7150/058	NV Pump American Standard Oil Coolers Corrective Maintenance	28
		MP/0/A/7400/021	Fisher Type 98L Diesel Engine Fuel Oil Back Pressure Relief Valve Maintenance	015
		MP/0/A/7700/043	Westinghouse Large Motor Cooler Hx Maintenance	30
		MP/0/A/7700/045	System Pressure Testing of Duke A, B, and C Mechanical Connections	19
		MP/0/A/7700/086	Assessment of QA1 Repairs or Replacements	38
		OP/1/A/6350/002	Diesel Generator	138
		OP/2/A/6400/006	Nuclear Service Water System	196
		OP/2/A/6400/006A	Nuclear Service Water System Valve Checklists	66
		PT/1/A/4252/001	#1 TD CA Pump Performance Test	139
	Work Orders	20485654		
		20607308		
		20613895, 20613568		
71114.06	Corrective Action Documents	2501456, 2501460, 2501609, 2501610		
	Miscellaneous	ASE-11	LOCT ASE 11 Active Simulator Exam	25
71152A	Corrective Action Documents	Nuclear Condition Report(s)	20431738	
	Engineering Changes	EC	95580	
	Work Orders	Work Request	20254149	
71152S	Corrective Action Documents	Nuclear Condition Report(s)	02505383, 02508548, 02509040	
	Procedures	AD-FP-ALL-1520	Transient Combustible Control	1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		MSD-585	Reactor Building Personnel Access and Material Control	03/12/2024
		MSD-585	Reactor Building Personnel Access and Material Control	03/13/2024
		MSD-585	Reactor Building Personnel Access and Material Control	03/14/2024