



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

May 10, 2024

EA-24-049

Nicole Flippin
Site Vice President
Duke Energy Carolinas, LLC
4800 Concord Road
York, SC 29745-9635

SUBJECT: CATAWBA NUCLEAR STATION – INTEGRATED INSPECTION REPORT
05000413/2024001 AND 05000414/2024001 AND APPARENT VIOLATION

Dear Nicole Flippin:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Catawba Nuclear Station. On May 8, 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.

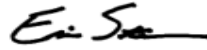
Section 7111.15 of the enclosed report discusses a finding with an associated apparent violation for which the NRC has not yet reached a preliminary significance determination. This finding involved two examples of a failure to implement measures to maintain the functionality of the diesel building emergency ventilation system which resulted in the 2A emergency diesel generator being inoperable.

We are currently evaluating the significance of this finding and will notify you in a separate correspondence once we have completed our preliminary significance review. We ask that you promptly provide any relevant information that you would like us to consider in making our determination. You will be given an additional opportunity to provide additional information prior to our final significance determination unless our review concludes that the finding has very low safety significance (i.e., Green). The NRC's significance determination process (SDP) is designed to encourage an open dialogue between your staff and the NRC; however, neither the dialogue nor the written information you provide should affect the timeliness of our final determination.

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 Catawba 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 05/10/24

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

Docket Nos. 05000413 and 05000414
License Nos. NPF-35 and NPF-52

Enclosure:
As stated

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05000413/2024001 AND 05000414/2024001 AND APPARENT VIOLATION
DATED MAY 10, 2024

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DATE	5/9/2024	5/9/2024	5/9/2024	5/ 10 /2024	

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

Docket Numbers: 05000413 and 05000414

License Numbers: NPF-35 and NPF-52

Report Numbers: 05000413/2024001 and 05000414/2024001

Enterprise Identifier: I-2024-001-0021

Licensee: Duke Energy Carolinas, LLC

Facility: Catawba Nuclear Station

Location: York, South Carolina

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

Inspectors: D. Rivard, Senior Resident Inspector
A. Wang, Resident Inspector
S. Downey, Senior Reactor Inspector
T. Griffin, Project Engineer
A. Nielsen, Senior Health Physicist
J. Rivera, Health Physicist
S. Temple, Senior Resident 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 Catawba 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 Implement Measures to Maintain Functionality of the 2A Diesel Building Emergency Ventilation System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Pending AV 05000414/2024001-01 Open EA-24-049	[H.12] - Avoid Complacency	71111.15
A self-revealed finding with its safety significance as yet to be determined (pending) and an associated apparent violation of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion III, “Design Control,” was identified for the licensee’s failure to establish measures to assure the diesel building ventilation system (VD) design basis was translated into applicable licensing basis documents, with two examples. Specifically, the licensee did not 1) translate regulatory requirements and the design basis for all temperature conditions and 2) delineate verification of proper system response and temperature control, into applicable documents, to ensure the VD system for the 2A emergency diesel generator (EDG) remained functional.			

Additional Tracking Items

None.

PLANT STATUS

Unit 1 operated at or near 100 percent rated thermal power (RTP) the entire inspection period.

Unit 2 began the inspection period at or near 100 percent RTP. On March 16, 2024, the unit was shut down for the remainder of the inspection period for a scheduled refueling outage (C2R26).

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 severe weather upon the issuance of a tornado watch on January 9, 2024.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (2 Samples)

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

- (1) Unit 1 emergency diesel generator fuel oil system following recirculation and sampling of associated diesel fuel tanks on February 7, 2024
- (2) Unit 1 'A' and 'B' emergency diesel generators (EDGs) while Unit 2 'A' EDG was out of service (OOS) for upcoming testing on February 13, 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) Fire areas 2, 31, 33, 36, and 39: auxiliary feedwater pump room, pits, and panels on February 28, 2024
- (2) Fire area 18: Unit 2 fuel pool cooling room, room 409 on March 21, 2024
- (3) Fire areas 14 and 15: Units 1 and 2 'A' train 4160 essential switchgear rooms on March 26, 2024
- (4) Fire area reactor building: Unit 2 lower containment on March 27, 2024
- (5) Fire areas 29 and 30: trains A and B service water pumphouse on March 29, 2024

71111.08P - Inservice Inspection Activities (PWR)

The inspectors verified that the reactor coolant system boundary, reactor vessel internals, risk-significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities in Unit 2 during refueling outage C2R26 from March 25 to March 28, 2024.

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

The inspectors verified that the following nondestructive examination and welding activities were performed appropriately:

- (1)
 1. Radiographic Examination
 - a. 2CF38-1, valve to pipe weld, ASME Class 2. This included a review of the associated welding activities.
 - b. 2CF38-11, valve to pipe weld, ASME Class 2. This included a review of the associated welding activities.
 2. Ultrasonic Examination
 - a. 2CF65-27, elbow to nozzle weld, ASME Class 2
 - b. 2CF67-26, elbow to nozzle weld, ASME Class 2
 - c. 2NC117-7V, pressurizer relief nozzle full structural weld overlay (FSWOL), ASME Class 1

PWR Inservice Inspection Activities Sample - Vessel Upper Head Penetration Inspection Activities (IP Section 03.02) (1 Sample)

The inspectors verified that the licensee conducted the following vessel upper head penetration inspections and addressed any identified defects appropriately:

- (1)
 1. Bare metal visual examination of the reactor pressure vessel upper head, ASME Class 1
 2. Liquid penetrant examination of reactor vessel head penetration 74 weld overlay, ASME Class 1

PWR Inservice Inspection Activities Sample - Boric Acid Corrosion Control Inspection Activities (IP Section 03.03) (1 Sample)

The inspectors evaluated the licensee's boric acid control program performance, which included the following activities:

- (1)
 1. Boric Acid Walkdown – Wednesday, March 27, 2024

2. Review of the following boric acid evaluations (by condition report number):
 - a. Action request (AR) 2456822
 - b. AR 2466623
3. Review of the following corrective actions performed for evidence of boric acid leaks that were identified (by work request number):
 - a. Work request (WR) 20239902
 - b. WR 20262768
 - c. WR 20262834
 - d. WR 20262836

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 the operating crew identify and respond to a leak on 2A seal injection filter leak on March 4, 2024. AP/2/A/5500/008, "Malfunction of Reactor Coolant Pump, Case II Loss of Seal Water Injection," was used for the initial receipt of annunciator 2AD-7 C/4, "reactor coolant pump (NCP) seal water lo flow." Upon identifying the filter leak, the crew entered AP/2/A/5500/010, "Reactor Coolant System Leak," to isolate the leaking filter and swap to the alternate filter.
- (2) The inspectors observed and evaluated licensed operator performance in the control room during Unit 2 shutdown for refueling outage on March 16, 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) Nuclear condition report (NCR) 02497721, 1A emergency diesel failed to maintain voltage following hot restart test

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) 1A safety injection pump maintenance, on January 4, 2024
- (2) Protected equipment during 1A EDG maintenance week, on February 2, 2024
- (3) Unit 2 elevated risk due to 2A EDG OOS for test equipment install, on February 14, 2024
- (4) Protected equipment during 2A EDG maintenance, on March 7, 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) NCR 02508170, unexpected annunciator receipt during 2ETA degraded bus voltage testing
- (2) NCR 02499589, 2A EDG room ventilation (VD) failure
- (3) NCR 02384805 and 02384806, 1A VD pressure switches out of tolerance
- (4) NCR 02508850, impact of 'B' train nuclear service water pump structure ventilation components out of service
- (5) NCR 02497721, 1A emergency diesel failed to maintain voltage following hot restart test

71111.20 - Refueling and Other Outage Activities

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

- (1) (Partial)
The inspectors evaluated Unit 2 refueling outage (C2R26) activities from March 16, 2024, to March 31, 2024. The inspectors completed inspection procedure Sections 03.01.a through 03.01.b.

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) (3 Samples)

- (1) Standby shutdown facility following maintenance window PT/0/A/4200/017A, "Standby Shutdown Facility Diesel Test," and PT/0/A/4200/019A, "Standby Shutdown Facility Diesel Generator Operating Procedures," on February 16, 2024
- (2) 2A2 VD fan following replacement, work order (WO) 20321769
- (3) NCR 02507763, 2A emergency diesel generator failed to generate voltage on automatic start

Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) 2A EDG heat measurement, WO 20649193
- (2) PT/2/A/4200/009, "B Train Engineered Safety Features Actuation Periodic Test," on March 22, 2024
- (3) PT/2/A/4600/03A, "Monthly Surveillance Items," and PT/2/A/4600/019E, "Premode 5 Periodic Surveillance Items," on March 22, 2024

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

- (1) PT/2/A/4200/001 I, "As Found Containment Isolation Valve Leak Rate Test," during C2R26 penetration no. CNIP-2EMF, on March 27, 2024

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

- (1) FLEX dome walkdown and test data review of FLEX equipment preventive maintenance, WO 20623109, on March 19, 2024

71114.06 - Drill Evaluation

Additional Drill and/or Training Evolution (1 Sample)

The inspectors evaluated:

- (1) Off-hours unannounced drill and exercise performance drill and critique on February 23, 2024, involving a loss of all offsite power and subsequent loss of EDG resulting in an alert declaration.

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) (3 Samples)

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

- (1) Licensee surveys of potentially contaminated material leaving the radiologically controlled area (RCA)
- (2) Workers exiting the RCA
- (3) Control of material in the Unit 2 spent fuel pool

Radiological Hazards Control and Work Coverage (IP Section 03.04) (3 Samples)

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

- (1) Unit 2 blind flange removal
- (2) Unit 2 thimble retraction
- (3) Unit 2 reactor vessel head nozzle inspection activities

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (3 Samples)

The inspectors evaluated licensee controls of the following high radiation areas and very high radiation areas:

- (1) Unit 1 waste evaporator feed tank room
- (2) Unit 2 auxiliary building valve gallery
- (3) Auxiliary building radwaste feed skid and dewatering pump room

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) (1 Sample)

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

- (1) Control room area ventilation system

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

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

- (1) High efficiency particulate air (HEPA) ventilation unit ID no. 14
- (2) HEPA ventilation unit ID no. 50

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.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

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)

MS10: Cooling Water Support Systems (IP Section 02.09) (2 Samples)

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

BI02: RCS Leak Rate Sample (IP Section 02.11) (2 Samples)

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

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

- (1) May 6, 2023, through February 14, 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 with the EDG control relay performance that might be indicative of a more significant safety issue.

INSPECTION RESULTS

Failure to Implement Measures to Maintain Functionality of the 2A Diesel Building Emergency Ventilation System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Pending AV 05000414/2024001-01 Open EA-24-049	[H.12] - Avoid Complacency	71111.15
A self-revealed finding with its safety significance as yet to be determined (pending) and an associated apparent violation of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," was identified for the licensee's failure to establish measures to assure the diesel building ventilation system (VD) design basis was translated into applicable licensing basis documents, with two examples. Specifically, the licensee did not 1) translate regulatory requirements and the design basis for all required temperature conditions and 2) delineate verification of proper system response and temperature control, into applicable documents, to ensure the VD system for the 2A emergency diesel generator (EDG) remained functional.			
<u>Description:</u> On January 2, 2024, after starting the 2A EDG at 1031 for a 5-hour operability run per procedure PT/2/A/4350/002A, "Diesel Generator 2A Operability Test," the licensee aborted the run due to elevated temperatures and a strong diesel exhaust odor in the room. The licensee determined that based on trends of the room temperature data, the maximum room temperature was observed to be 107 degrees Fahrenheit (°F) at the time 2A EDG was secured and trending such that it would have exceeded the 120°F design limit for the room prior to completion of the 5-hour run. The licensee secured the 2A EDG at ~1439 and declared it operable due to meeting the testing criteria in procedure PT/2/A/4350/002A. The			

licensee performed troubleshooting and upon further evaluation determined that the 2A1 emergency ventilation fan damper controller VDTT7500 had failed low to a temperature of 10°F. Therefore, it would not modulate outdoor inlet damper 2DSF-D3 open, nor modulate recirculating damper 2DSF-D4 shut to provide excess exhaust air out of the two relief backdraft dampers on the opposite side of the room to the exterior of the building. At 2045, the licensee determined that the 2A EDG was not capable of operating for the defined mission time (7 days) due to the failure of the 2A diesel building emergency ventilation system (because the 2A2 fan was tagged out for maintenance) and declared it inoperable. After repair of the failed damper controller, the licensee declared the 2A EDG operable on January 3, 2024, at 0531.

The inspectors reviewed performance of PT/2/A/4350/002A for the past year and noted that while the test procedure validated that the fan indication lights and fans associated with the ventilation system operate when an EDG is running, the procedure did not verify damper response or room temperature response. Additionally, the inspectors reviewed the 2A EDG run history and ambient temperature conditions. During the April 4, 2023, December 5, 2023, and January 2, 2024, runs of the 2A EDG, temperatures were observed to reach 105°F and still trending upwards at the time secured. Of those runs, April 4, 2023, was a 5-hour run. The other 2A EDG runs were 1 hour runs. The 2A EDG did not exceed the temperature limit of 120°F for a running EDG but, based on graphical data, could have trended beyond the temperature limit if called upon for an extended duration run. The EDG runs on January 3, 2023, March 7, 2023, October 3, 2023, showed a greater than 5°F temperature difference between the two sides of the room, with a maximum differential temperature of 9°F during the April 4, 2023, run. The remaining monthly EDG runs reviewed did not appear to display abnormal temperatures. The inspectors compared this to the previous 24-hour EDG run on August 2, 2022, which had similar room temperatures on both sides of the room and was capable of limiting the maximum room temperature to 106°F with an outside ambient temperature of ~90°F.

CNS-1579.VD-00-0001, "Design Basis Document," states the diesel emergency ventilation system is a support system designed to modulate recirculation and inlet air dampers to maintain room temperature to roughly 85°F to ensure that the EDG, as well as its associated electrical components, are capable of meeting the EDG mission time in event of design base events like a loss of cooling accident or a loss of offsite power. Emergency ventilation fans 2A1 and 2A2 automatically start when the 2A EDG starts. The Catawba Updated Final Safety Analysis Report (UFSAR) describes the emergency ventilation portion of the VD system as consisting of two 50% capacity fans, ductwork, and modulating return air and outside air dampers, and designed to maintain temperatures between 60°F and 120°F when the EDG is operating. Licensee calculation CNC-1211.00-00-0013, "Diesel Building Ventilation/Heating Requirements," feeds into CNS-1579.VD-00-0001 which the licensee uses to support operability determinations. Prior to 2006, the licensee considered the failure of a single VD fan as a failure of the VD system. PIP C-06-05467 (legacy corrective action document) documented the engineering change that was performed by the licensee in 2006 to modify CNC-1211.00-00-0013 to provide additional guidance based on outside ambient air temperature.

Calculation CNC-1211.00-00-0013 shows that, under some outside ambient air temperature conditions and opposite fan damper position conditions, a single ventilation fan can maintain the diesel room within design temperatures; and under elevated outside ambient air temperature conditions, both ventilation fans are required to maintain the diesel room temperatures below the design values during operation. While this distinction in outside

ambient air temperatures and damper positioning was made in the calculation, it was not reflected in licensing basis documents (e.g., UFSAR) that reflected the requirement of both ventilation fans and associated dampers to be functional for the VD system to remain capable of performing its safety-related design function of maintaining room temperatures within design limits as required for operability of the EDG.

On November 13, 2023, the licensee tagged the 2A2 fan out of service (OOS) for planned maintenance. The fan was originally planned to be OOS for 7 days. However, due to other emergent work activities, the fan remained OOS until February 6, 2024. When the licensee tagged the 2A2 fan out of service, they issued a technical specification (TS) limiting condition for operation (LCO) tracking record (LCOTR) against TS LCO 3.8.1 Condition B, for one EDG inoperable. The least restrictive completion time to restore the EDG to operable status is 14 days. However, the LCOTR was considered "tracking only" and had no associated actions. The inspectors noted that a summary of the temperature restrictions for single fan operation was included in the notes of the LCOTR, but it contained no instructions to verify or track outside ambient air temperature.

The inspectors reviewed the completed procedures, PT/2/A/4350/002 A, for the surveillances performed on December 5, 2023, and January 2, 2024. In both procedures, the verification of the 2A2 fan start and verification of the adequate air flow light - on, were not performed. Licensee procedure AD-HU-ALL-0004, "Procedure and Work Instruction Use and Adherence," contains a provision for problems with equipment. This procedure section states in part, "If the acceptance criteria of the Procedure can be met and the Procedure step(s) can be performed as written, then document the Discrepancy in the WR/WO and, if used, on Attachment 3, Equipment Problem Evaluation Form, and continue with the Procedure." The licensee used this provision to annotate the 2A2 fan as removed from service and continued with the procedure. However, the inspectors determined that because the 2A2 fan was out of service, the verification step (e.g., Enclosure 13.1, step 2.18) could not be performed as written. The inspectors also noted that PT/2/A/4350/002 A, Enclosure 13.3, "Start Data," did not indicate number of ventilation fans required to be operating, or any actions to take in response to one or more fans not operating.

TS LCO 3.8.1 (b) requires in part, two operable EDGs. With one EDG inoperable, the inoperable EDG must be restored to operable status within 72 hours per Required Action B.6 or place the unit in mode 3 within 6 hours and in mode 5 within 36 hours per Required Actions I.1 and I.2. The licensee may extend the completion time up to 14 days if Required Action B.5 (evaluate availability of emergency supplemental power source) is completed. The licensee determined the failed condition of the 2A1 emergency ventilation fan damper controller, combined with the 2A2 ventilation fan out of service for maintenance, existed since December 5, 2023. The NRC inspectors determined the damper controller failure most likely occurred between August 2022 (last 24-hour EDG surveillance without abnormal temperatures) and April 4, 2023 (surveillance during which temperatures were observed to reach 105°F and still trending upwards at the time the EDG was secured). Therefore, the 2A EDG was inoperable between at least December 5, 2023, and January 2, 2024. The licensee submitted LER 2024-001-00, in accordance with 10 CFR 50.73(a)(2)(i)(B) for the condition prohibited by technical specifications. On December 19, 2023, from 0302 until 0445, and 0904 until 1112, the 2B EDG was declared inoperable in support of planned testing. This represented a "condition that could have prevented fulfillment of a safety function," and the licensee reported this under 10 CFR 50.73(a)(2)(v) for Unit 2.

Corrective Actions: The licensee completed a 10 CFR Part 21 evaluation for recent EDG damper controller failures. The licensee plans to update their commercial grade dedication process to provide a more comprehensive review of the internal electronics for the damper controllers; evaluate impact on other safety-related applications of the damper controllers; and replace all EDG damper controllers. The licensee also plans to update procedure PT/2/A/4350/002A to evaluate performance of the dampers, and revise the VD system licensing basis documents for consistency in documentation.

Corrective Action References: NCR 02499597 and 02499589

Performance Assessment:

Performance Deficiency: The licensee's failure to implement measures to maintain the functionality of the diesel building emergency ventilation system was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment 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, failure to translate VD design basis information for maintenance and testing, and to incorporate verification of VD system response, allowed adverse ventilation conditions to be undetected. This adversely affected the availability, reliability, and capability of the VD system to remain functional under all design conditions, and consequently resulted in the inoperability of the 2A EDG.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding required a detailed risk evaluation because the degraded condition represented a loss of the probabilistic risk assessment (PRA) function of one train of a multi-train TS system for greater than its TS allowed outage time. The significance determination for the finding is pending an initial significance characterization.

Cross-Cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. The licensee did not have a method to validate temperature response in EDG rooms during EDG surveillance testing and misattributed the unexpected odor and high temperatures in the room during the December surveillance as being caused by the second ventilation fan that was tagged out for maintenance.

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions...and design control measures shall be applied to items such as delineation of acceptance criteria for inspections and tests.

UFSAR Section 9.4.4, Diesel Building Ventilation System, subsection 9.4.4.2, "System Description" states in part that the emergency ventilation system for each diesel enclosure consists of two 50 percent capacity fans, ductwork, and modulating return air and outside air

dampers arranged to maintain space temperature between 60°F and 120°F when the diesel is operating.... proportioning controls are provided to modulate the outdoor air dampers toward the open position and the return air dampers toward the closed position.

UFSAR subsection 9.4.4.4, "Inspection and Testing Requirements," state in part, essential electrical components, switchovers, and starting controls are tested during preoperational tests and periodically thereafter coincident to testing of the diesels as required by the technical specifications.

Technical specification (TS) 3.8.1, "AC Sources - Operating," LCO 3.8.1.b requires, in part, that two diesel generators capable of supplying the onsite essential auxiliary power systems shall be operable while in modes 1, 2, 3, or 4. TS 3.8.1, Required Action D.3, requires that required features of supported systems of the inoperable EDG be declared inoperable when its redundant function(s) is inoperable. TS 3.7.10, "Control Area Ventilation System (CRAVS)," requires two CRAVS trains to be operable, and TS 3.7.11, "Control Room Area Chilled Water System (CRACWS)," requires two CRACWS trains to be operable. LCO 3.0.3 requires in part, that when an LCO is not met, and the associated actions are not met, action shall be initiated within 1 hour to place the unit, in mode 3 within 7 hours; mode 4 within 13 hours; and mode 5 within 37 hours.

Contrary to the above, from at least 2006, the licensee failed to establish measures to assure that applicable regulatory requirements and the design basis were correctly translated into specifications, procedures, and instructions, and acceptance criteria were delineated. Specifically, the licensee did not 1) translate regulatory requirements and the design basis information for all temperature conditions and 2) delineate verification of proper system response and temperature control, into applicable plant operations documents, to ensure the VD system remained functional. As a result, with the 2A2 emergency ventilation fan out of service due to maintenance and the 2A1 emergency ventilation fan unable to provide outside air due to the failed damper controller, the 2A EDG VD system was non-functional which resulted in the 2A EDG being inoperable. With the 2A EDG inoperable from at least December 5, 2023, to January 2, 2024, the licensee failed to meet TS LCO 3.8.1, Condition B. Consequently, because the 'B' Train CRAVS and 'B' Train CRACWS shared systems were declared inoperable for planned maintenance between, December 17, 2023, at 1543, and December 19, 2023, at 2057, and the 'A' train CRAVS and 'A' train CRACWS were declared inoperable per LCO 3.8.1 Required Action D.3., LCOs 3.7.10 (CRAVS) Condition F and 3.7.11 (CRACWS) Condition E, required immediate entry into LCO 3.0.3 for two inoperable trains. Therefore, the licensee failed to meet LCOs 3.7.10, 3.7.11, and 3.0.3.

Enforcement Action: This violation is being treated as an apparent violation pending a final significance (enforcement) determination.

EXIT MEETINGS AND DEBRIEFS

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

- On March 22, 2024, the inspectors presented the radiation protection inspection results to J. Huecker and other members of the licensee staff.
- On May 8, 2024, the inspectors presented the integrated inspection results to Nicole Flippin and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.05	Corrective Action Documents	NCR	02506256, 02510109, 02509828	
		WR	20264543	
71111.08P	Corrective Action Documents	NCR	02510124, 02510133, 02510508	
	NDE Reports	DE_C_2_2CF38-1_20220923	Computed Radiography Examination of Weld 2CF38-1	09/27/2022
		DE_C_2_2CF38-11_20220923	Computed Radiography Examination of Weld 2CF38-11	09/27/2022
		UT-24-013	Ultrasonic Examination of Weld 2CF67-26	03/29/2024
		UT-24-014	Ultrasonic Examination of Weld 2CF65-27	03/27/2024
		VE-24-001	Ultrasonic Examination of Pressurizer Relief Nozzle Full Structural Weld Overlay	03/23/2024
		VT-24-054	Visual Examination of Reactor Pressure Vessel Closure Head	03/28/2024
		WDI-PJF-350682-NDE-001	2024 Reactor Vessel Head Penetration 74 Weld Overlay Examination Summary	1
	Work Orders	Work Orders	20487698-49	
71111.15	Corrective Action Documents	WR	2064872, 2064873, 20261290	
	Drawings	CN-1721-22.17	Panel Cutout Sheet Agastat 8 & 11 Pin Octal Base Sockets for Plug-in Relays	
		CNEE-0215-01.20	Elementary Diagram 4160V Switchgear 2ETA Breaker Failure, Mode Selector and Degraded Bus Voltage Circuits	10
		CNEE-0215-01.20-01	Elementary Diagram 4160V Switchgear 2ETA Breaker Failure and Switchgear Mode Selector Circuits Auxiliary Relays	9
		CNEE-0220-01.01	Elementary Diagram Diesel Engine Control Panel 2A & 2B (Typical – Part 2) Engine Panel Electrical Schem	21
		CNEE-0220-01.01-01	Elementary Diagram Diesel Engine Control Panel 2A & 2B (Typical – Part 2) Engine Panel Electrical Schem	28
		CNEE-0220-01.01-02	Elementary Diagram Diesel Engine Control Pnl 2A & 2B (Typical – Part 3) Engine Pnl Elect Schmtc	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CNEE-0220-01.01-10	Elementary Diagram Diesel Engine Control Panel	
		CNEE-0238-01.38	Elementary Diagram Nuclear Service Water System (RN) Diesel Generator 2B Heat Exchanger Inlet Isol. Valve 2RN292B	7
	Miscellaneous		Temperature Data from previous 2A EDG runs	
	Procedures	AD-EG-ALL-1000	Conduct of Engineering	
		PT/2/A/4350/006 C	Essential Power System Train A Degraded Bus Voltage Circuit Test	001
Work Orders		20643553, 20643552, 20633297, 20629118, 20627129, 20618733, 20591186, 20609853, 20306102, 20596751, 20593329, 20586155, 20581051, 20575931, 20567523, 20562646, 20561033, 20555974, 20507479, 20542932, 20535367, 20530926		
71111.20	Procedures	OP/2/A/6100/002	Controlling Procedure for Unit Shutdown	188
71111.24	Corrective Action Documents		02508768	
	Procedures	PT/2/A/42001 I	As Found Containment Isolation Valve Leak Rate Test	
		PT/2/A/4600/03 A	Monthly Surveillance Items	131
		PT/2/A/4600019E	Premode 5 Periodic Surveillance Items	
Work Orders		20649193, 20321769, 20653420		
71124.01	ALARA Plans	C2R26-24-02	Reactor Head Activities	0
	Corrective Action Documents		NCR 02507401, NCR 02508930	
	Procedures	AD-RP-ALL-2002	SRD Alarms	6
AD-RP-ALL-2011		Radiation Protection Briefings	7	