



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

August 9, 2022

EA-22-060

Ms. Nicole Flippin
Site Vice President
H.B. Robinson Steam Electric Plant
Duke Energy Progress, LLC
3581 West Entrance Road, RNPA01
Hartsville, SC 29550

**SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT – INTEGRATED INSPECTION
REPORT 05000261/2022002, 07200060/2022001 AND EXERCISE OF
ENFORCEMENT DISCRETION**

Dear Ms. Flippin:

On June 30, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at H.B. Robinson Steam Electric Plant. On July 14, 2022, 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.

The NRC identified a violation of 10 CFR 72.212 (b)(6) associated with tornado hazard protection. Because this violation was identified during the discretion period covered by Enforcement Guidance Memorandum 22-001, "Enforcement Discretion for Noncompliance of Tornado Hazard Protection requirements at Independent Spent Fuel Storage Installations," and because the licensee was implementing compensatory measures and has taken or plans to take the necessary actions to restore compliance, the NRC is exercising enforcement discretion by not issuing an enforcement action for the violation and is allowing continued Independent Spent Fuel Storage Installations (ISFSI) handling operations.

No findings or violations of more than minor significance were identified during this inspection.

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 Dumbacher, David
on 08/09/22

David E. Dumbacher, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket No. 05000261 and 07200060
License No. DPR-23

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT – INTEGRATED INSPECTION REPORT 05000261/2022002, 07200060/2022001 AND EXERCISE OF ENFORCEMENT DISCRETION DATED AUGUST 09,2022

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DATE	08/03/2022	08/02/2022	08/09/2022		

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

Docket Number: 05000261 and 07200060

License Number: DPR-23

Report Number: 05000261/2022002 and 07200060/2022001

Enterprise Identifier: I-2022-002-0028 and I-2022-001-0041

Licensee: Duke Energy Progress, LLC

Facility: H.B. Robinson Steam Electric Plant

Location: Hartsville, SC

Inspection Dates: April 01, 2022 to June 30, 2022

Inspectors: B. Bishop, Senior Project Engineer
P. Cooper, Senior Reactor Inspector
M. Fannon, Senior Resident Inspector
J. Walker, Emergency Response Inspector

Approved By: David E. Dumbacher, Chief
Reactor Projects Branch 3
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 H.B. Robinson Steam Electric Plant, 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

No findings or violations of more than minor significance were identified.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
EDG	EA-22-060	Enforcement Action 22-060: Tornado Hazards Protection Requirements at Independent Spent Fuel Storage Installations (EGM 22-001)	60855	Closed

PLANT STATUS

Unit 2 began the inspection period at rated thermal power (RTP). On June 17, 2022, the unit was down powered to 53 percent RTP for repairs on an electro-hydraulic leak on the left main steam stop valve. The unit was returned to RTP on June 18, 2022. The unit remained at or near RTP for the remainder of the 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

Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal hot temperatures and hurricane season for the following systems:

Offsite power and emergency diesel generators (EDGs) on May 16 through 19, 2022.

External Flooding Sample (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated that flood protection barriers, mitigation plans, procedures, and equipment are consistent with the licensee's design requirements and risk analysis assumptions for coping with external flooding on May 22 through 25, 2022.

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) 'A' safety injection (SI) on April 5, 2022
- (2) Service water at the intake on April 13, 2022
- (3) 'A' EDG on May 3, 2022
- (4) 'B' component cooling water (CCW) during 'C' CCW maintenance activities on June 14, 2022

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 zones 9 and 10, north and south cable vaults on April 5, 2022
- (2) Fire zone 29, intake service water pump area on April 13, 2022
- (3) Fire zones 31 and 32, refueling and primary water storage tank area on May 2, 2022
- (4) Fire zone 30, diesel fuel oil storage tank area on May 9, 2022
- (5) Fire zones 17 and 18, control room ventilation equipment room on June 22, 2022

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 nuclear instrument testing and alarm response actions on June 3, 2022.

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated an annual exam on June 21, 2022.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 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) 'C' CCW pump out of service for outboard seal replacement (Work Order [WO] 20500343)
- (2) 'A' charging pump recirculation root isolation leakage that was identified during 'B' charging pump maintenance activities (Nuclear Condition Report (NCR) 2424072)

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (6 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) 'B' charging pump maintenance activities on April 6, 2022
- (2) 'B' motor driven auxiliary feedwater (MDAFW) maintenance and testing on April 12, 2022

- (3) 'C' CCW outboard seal replacement on April 18, 2022
- (4) 'B' CCW pump maintenance activities and control room emergency filtration system maintenance activities on May 24, 2022
- (5) 'C' CCW inboard seal replacement and 'C' charging pump packing replacement on June 14 and 15, 2022
- (6) 'C' SI maintenance activities on June 21, 2022

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 2422946, investigate noise from 'A' CCW pump motor
- (2) NCR 2424072, 'A' charging pump recirculation root isolation leak
- (3) NCR 2424167, 'C' CCW inboard seal leak
- (4) NCR 2427281, N-44 power range lower detector spiked for approximately 90 seconds
- (5) NCR 2429825, loss of containment average temperature indication

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Engineering Change 421076, EDG fuel injector pump thread engagement

Severe Accident Management Guidelines (SAMG) Update (IP Section 03.03) (1 Sample)

- (1) The inspectors verified the site SAMG were updated in accordance with the pressurized water reactor generic severe accident technical guidelines and validated in accordance with NEI 14-01, "Emergency Response Procedures and Guidelines for Beyond Design Basis Events and Severe Accidents," Revision 1.

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (6 Samples)

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

- (1) OST-201-2, 'B' MDAFW component test following maintenance activities on April 12, 2022
- (2) OST-908-4, 'C' CCW surveillance test following outboard seal replacement on April 18 and 19, 2022
- (3) OST-352-2, containment spray component test following maintenance activities on May 11, 2022

- (4) OST-010, power range calorimetric following N-44 power range detector activities on May 19, 2022
- (5) WO 20510070, 'A' control room emergency filtration system operational check following belt replacements on June 1, 2022
- (6) OST-151-6, 'C' SI pump comprehensive flow test following maintenance on July 21, 2022

71111.22 - Surveillance Testing

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

Surveillance Tests (other) (IP Section 03.01) (2 Samples)

- (1) OST-023, monthly surveillances on April 12, 2022
- (2) OST-409-2, 'B' EDG fast start surveillance test on April 17, 2022

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) OST-908-4, 'C' CCW pump test on June 15, 2022

FLEX Testing (IP Section 03.02) (1 Sample)

- (1) OST-453, annual test of the 'A' diverse and flexible coping strategies diesel generator on May 12, 2022

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) (1 Sample)

- (1) April 1, 2021 through March 31, 2022

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (1 Sample)

- (1) April 1, 2021 through March 31, 2022

MS06: Emergency AC Power Systems (IP Section 02.05) (1 Sample)

- (1) April 1, 2021 through March 31, 2022

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) NCR 2383030, corrective actions for the plant vent flow estimation when the flow instrument is out of service
- (2) NCR 2412278, fire watch procedure revised due to lack of clarity for duties and assignments of a continuous fire watch

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 for potential adverse trends in equipment reliability and equipment issue trending that might be indicative of a more significant safety issue.

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855 - Operation of an Independent Spent Fuel Storage Installations (ISFSI)

Inspections were conducted using the appropriate portions of the 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 ISFSI and for 10 CFR Part 71 Transportation Packaging's."

Operation Of An ISFSI (1 Sample)

- (1) From May 16 – 19, 2022, 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 inspector also performed an independent radiation survey of the ISFSI pad.

INSPECTION RESULTS

Enforcement Discretion	Enforcement Action EA-22-060: Enforcement Action 22-060: Tornado Hazards Protection Requirements at Independent Spent Fuel Storage Installations (EGM 22-001)	60855
<p><u>Description:</u> Upon issuance of U.S. NRC Enforcement Guidance Memorandum 22-001 (ML22087A496), dated April 15, 2022, the licensee performed an assessment of all outdoor dry cask storage activities that are not explicitly analyzed for tornado hazards in the cask licensing basis. Several configurations were identified by the licensee including when a loaded Dry Shielded Canister (DSC) with the shield plug is transferred out of the Spent Fuel Pool to the Cask Handling Facility and when the transfer cask lid is removed to insert the DSC into the Horizontal Storage Module (HSM). These configurations are not explicitly analyzed in the Standardized NUHOMS 72-1004 FSAR. Title 10 of the Code of Federal Regulations (CFR) 72.212 (b)(6), states, in part, that “the general licensee must:... review the Safety Analysis Report referenced in the Certificate of Compliance (CoC) or amended CoC and the related NRC Safety Evaluation Report, prior to use of the general license, to determine whether or not the reactor site parameters, including analyses of earthquake intensity and tornado missiles, are enveloped by the cask design bases considered in these reports. The results of this review must be documented in the evaluation made in paragraph (b)(5) of this section.” Tornado hazards are evaluated in the Standardized NUHOMS 72-1004 FSAR section 3.2.1, “Tornado and Wind Loadings,” and section 8.2.2, “Tornado Winds/Tornado Missile.” These sections of the FSAR do not include an analysis for tornado hazards for these configurations. Additionally, the licensee did not have an evaluation demonstrating the reactor site parameters enveloped the cask design basis for tornado missiles.</p> <p><u>Corrective Actions:</u> The licensee entered the issue into its corrective action program to address the actions specified in EGM 22-001. Specifically, the licensee established additional measures that:</p> <ol style="list-style-type: none"> 1. mitigate tornado hazards, through procedures, during periods of ISFSI handling operations which include: <ol style="list-style-type: none"> a. precluding outdoor dry cask storage activities during periods of adverse weather b. establishing meteorological criteria and designating staff to monitor weather during ISFSI handling operations c. Describing actions to take in the event of severe weather necessary to place the cask in an analyzed condition d. Minimizing the duration of ISFSI handling operations during which ISFSI important to safety SSCs are in an unanalyzed condition. 2. document that required weather checks are complete prior to the start of ISFSI handling operations 3. document in the corrective action program (CAP) a request for the CoC holder to request an amendment within six months of the date of the EGM. <p>Because the licensee implemented compensatory measures and plans to take necessary actions to restore compliance in accordance with the EGM, the NRC is allowing continued ISFSI handling operations.</p> <p><u>Corrective Action References:</u> AR 02428806</p>		
<p><u>Enforcement:</u></p>		

Significance/Severity: The inspectors assessed the issue as being more than minor significance but not more than Severity Level IV. Consistent with the guidance in EGM 22-001 discussed below, the NRC is exercising enforcement discretion.

Violation: Title 10 of the Code of Federal Regulations (CFR) 72.212 (b)(6), states, in part, that “the general licensee must... review the Safety Analysis Report referenced in the CoC or amended CoC and the related NRC Safety Evaluation Report, prior to use of the general license, to determine whether or not the reactor site parameters, including analyses of earthquake intensity and tornado missiles, are enveloped by the cask design bases considered in these reports. The results of this review must be documented in the evaluation made in paragraph (b)(5) of this section.”

Contrary to the above, on May 19, 2022, the licensee did not have a documented evaluation determining whether the reactor site parameters, including analyses of tornado missiles, were enveloped by the cask design bases considered in the Safety Analysis Report. Specifically, the licensee failed to have an analysis for tornado hazards when a loaded DSC with the shield plug is transferred out of the Spent Fuel Pool to the Cask Handling Facility and when the transfer cask lid is removed to insert the DSC into the HSM.

Basis for Discretion: Because this violation was identified during the discretion period covered by Enforcement Guidance Memorandum 22-001, “Enforcement Discretion for Noncompliance of Tornado Hazard Protection requirements at Independent Spent Fuel Storage Installations,” and because the licensee was implementing compensatory measures and has taken or plans to take the necessary actions to restore compliance, the NRC is exercising enforcement discretion by not issuing an enforcement action for the violation and is allowing continued ISFSI handling operations.

EXIT MEETINGS AND DEBRIEFS

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

- On July 14, 2022, the inspectors presented the integrated inspection results to Nicole Flippin and other members of the licensee staff.
- On May 19, 2022, the inspectors presented the operation of an ISFSI inspection results to Nicole Flippin and other members of the licensee staff.