



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

May 4, 2023

Mr. Jim Barstow
Vice President Nuclear Regulatory Affairs & Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A-C
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT – INTEGRATED INSPECTION REPORT
05000390/2023001 AND 05000391/2023001

Dear Mr. Barstow:

On March 31, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Watts Bar Nuclear Plant. On April 19, 2023, the NRC inspectors discussed the results of this inspection with Mr. Anthony Williams and other members of your staff. The results of this inspection are documented in the enclosed report.

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,

A handwritten signature in black ink, appearing to read "Louis J. McKown, II".

Signed by McKown, Louis
on 05/04/23

Louis J. McKown, II, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket Nos. 05000390 and 05000391
License Nos. NPF-90 and NPF-96

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

SUBJECT: WATTS BAR NUCLEAR PLANT – INTEGRATED INSPECTION REPORT
05000390/2023001 AND 05000391/2023001 Dated May 04, 2023

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OFFICE	RII/DRP	RII/DRP	RII/DRP		
NAME	W. Deschaine	S. Ninh	L. McKown		
DATE	05/03/2023	05/03/2023	05/04/2023		

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

Docket Numbers: 05000390 and 05000391

License Numbers: NPF-90 and NPF-96

Report Numbers: 05000390/2023001 and 05000391/2023001

Enterprise Identifier: I-2023-001-0020

Licensee: Tennessee Valley Authority

Facility: Watts Bar Nuclear Plant

Location: Spring City, TN 37381

Inspection Dates: January 01, 2023 to March 31, 2023

Inspectors: W. Deschaine, Senior Resident Inspector
D. Strickland, Senior Project Engineer
R. Wehrmann, Resident Inspector

Approved By: Lou J. McKown, II, Chief
Reactor Projects Branch 5
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 Watts Bar Nuclear 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

None.

PLANT STATUS

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

Unit 2 operated at or near RTP 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 impending severe weather and high winds on March 2, 2023.

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) Units 1 & 2 Essential Raw Cooling Water System (both trains) on January 27, 2023.
- (2) Unit 1 Emergency Diesel Generator (EDG) system 1B on March 16, 2023.
- (3) Unit 1 Safety Injection (SI) system B train on March 23, 2023.
- (4) Unit 1 Motor Driven Auxiliary Feedwater (MDAFW) system both trains on March 31, 2023.

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) Auxiliary Building, elevation 757' - Auxiliary Control Room, Auxiliary Instrument Rooms, and 125V Vital Battery Board Rooms on February 21, 2023.
- (2) Auxiliary Building, elevation 713' Penetration Rooms on March 7, 2023.
- (3) Auxiliary Building, elevation 772' (480V Board Rooms) on March 14, 2023.
- (4) Auxiliary Building, elevation 729' on March 15, 2023.
- (5) Auxiliary Building, elevation 737' on March 15, 2023.

71111.07A - Heat Exchanger/Sink Performance

Annual Review (IP Section 03.01) (2 Samples)

The inspectors evaluated readiness and performance of:

- (1) 1-HTX-82-720B1-B, EDG jacket water heat exchanger 1B1 on March 20, 2023.
- (2) 2-HTX-82-720B2-B, EDG jacket water heat exchanger 2B2 on March 24, 2023.

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 the following activities:
 - EDG 1A monthly start and load test on January 6, 2023 (WO 122941705)
 - EDG 1A 24-hour load run on March 2, 2023 (WO 122942306)
 - Component cooling system pump test on March 15, 2023 (WO 123028665)

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

- (1) The inspectors observed and evaluated the following licensed operator requalification simulator scenarios (LOR training cycle 2301), which included a pressurizer level transmitter failing low, a feed water pressure transmitter failing low, a main steam line break in containment, and an Anticipated Transient Without Scram (ATWS) with a diesel generator failing to start.
 - Crew 3 on January 19, 2023
 - Crew 2 on January 26, 2023

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) Risk assessment for week of February 6, 2023, with the A train main control room (MCR) chiller out of service (OOS) for emergent work and the vital inverter 0-II OOS for planned maintenance.

- (2) Risk assessment for week of February 13, 2023, with the A train spent fuel pool heat exchanger OOS for planned maintenance.
- (3) Risk assessment for week of February 20, 2023, with the B train MCR chiller OOS for planned maintenance.
- (4) Risk assessment for week of March 6, 2023, with the 1B EDG OOS for planned maintenance.
- (5) Risk assessment for week of March 20, 2023, with the 2B EDG OOS for planned maintenance.

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (3 Samples)

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

- (1) CR 1833739, MCR Chiller A (0-CHR-031-0080A) will not maintain chill water temperature past operability evaluation (POE) on February 16, 2023.
- (2) CR 1833741, MCR Chiller B (0-CHR-031-0096B) tripped on low oil pressure on February 16, 2023.
- (3) CR 1843048, 1B battery charger #2 alarm defeat switch found in defeat with charger in service on March 31, 2023.

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) (2 Samples)

- (1) Unit 1 B train EDG drag start test and overspeed test follow the 2 year engine inspection, 0-MI-82.003 on March 9, 2023 (WO 122903442)
- (2) Unit 2 B train EDG drag start test and overspeed test follow the 2 year engine inspection, 0-MI-82.003 on March 23, 2023 (WO 122903432)

Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) Unit 1 EDG 24 hour load run (1A-A), 0-SI-82-13 on March 2, 2023 (WO 122942306)
- (2) Unit 2 SI pump 2B-B quarterly performance test, 2-SI-63-901-B on March 7, 2023 (123028155)
- (3) MDAFW pump 2A-A quarterly performance test, 2-SI-3-901-A on March 14, 2023 (WO 23028193)

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

- (1) Unit 2 MDAFW pump 2B-B quarterly performance test, 2-SI-3-901-B on February 6, 2022 (WO 123028199)

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

- (1) FLEX Intermediate Pressure (IP) pump performance test for 0-PMP-360-511, 0-TI-360.301 on March 15, 2023 (WO 123028369)

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On April 19, 2023, the inspectors presented the integrated inspection results to Mr. Anthony Williams and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Drawings	0-47W803-2	Flow Diagram Auxiliary Feedwater	Revision 11
		0-47W840-1A	Flow Diagram Fuel Oil Atomizing Air & Steam for Diesel Generator 1B-B	Revision 0
		0-47W840-4	Flow Diagram Fuel Oil 225KVA Diesel for Diesel Generator 1B-B	11/19/2014
		1-47W839-1A	Flow Diagram Diesel Starting Air System for Diesel Generator 1B-B	Revision 16
		1-47W839-1E	Flow Diagram Diesel Starting Air System for Diesel Generator 1B-B	Revision 4
		WBN-1-47W811-1-ISI	Flow Diagram for the Safety Injection System	Revision 0
	Miscellaneous	SDD-N3-82-4002	System Description for Standby Diesel Generator (System 82)	Revision 29
		WBN-SDD-N3-63-4001	System Description for the Safety Injection System (System 63)	Revision 38
	Procedures	0-SOI-82.02	System Operating Instruction for the Diesel Generator (DG) 1B-B	Revision 20
		0-SOI-82.02 ATT 1P	Diesel Generator (DG) 1B-B Power Checklist	Revision 0
		0-SOI-82.02 ATT 1V	Diesel Generator (DG) 1B-B Valve Checklist	Revision 11
		1-SOI-3.02	Unit 1 Auxiliary Feedwater System	1/26/2023
		1-SOI-3.02 ATT 1H	Auxiliary Feedwater System Handswitch Checklist	Revision 0019
		1-SOI-3.02 ATT 1P	Auxiliary Feedwater System Power Checklist 1-3.02-1P	Revision 0026
		1-SOI-3.02 ATT 1V	Auxiliary Feedwater System Valve Checklist	Revision 0028
		1-SOI-63.01	System Operating Instruction for the Safety Injection System	Revision 20
		1-SOI-63.01 ATT 1H	Safety Injection System Handswitch Checklist	Revision 0
		1-SOI-63.01 ATT	Safety Injection System Power Checklist	Revision 9

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		1P		
		1-SOI-63.01 ATT 1V	Safety Injection System Valve Checklist	Revision 16
71111.05	Drawings	45A883-3	Electrical Penetration Seal Details Unit 1 B2-2	Revision 0
		45A883-9	Electrical Penetration Seal Details Unit 1 K1	Revision 4
		47A472-5	Electrical Penetration Seal Details Unit 1 V	Revision 4
	Fire Plans	WBN Prefire Plans	AUX-0-713-01 Rev. 2, AUX-0-713-02 Rev. 3, AUX-0-713-03 Rev. 4, AUX-0-737-01 Rev. 3, AUX-0-737-02 Rev. 4, AUX-0-737-03 Rev. 3, AUX-0-757-01 Rev. 6, AUX-0-757-02 Rev. 4, AUX-0-757-03 Rev. 9, AUX-0-757-04 Rev. 6, AUX-0-772-01 Rev. 1, AUX-0-772-02 Rev. 5, AUX-0-772-03 Rev. 5,	
71111.07A	Procedures	0-TI-79.000	Program for Implementing NRC Generic Letter 89-13	Revision 9
		NPG-SPP-03.3	NRC Commitment Management	Revision 8
		NPG-SPP-09.14	Generic Letter (GL) 89-13 Implementation	Revision 5
		NPG-SPP-09.7.3	Raw Water Corrosion Program	Revision 5
	Work Orders	121612788	Visual Inspection and Evaluation of 2-HTX-82-720B2-B, Emergency Diesel Generator Jacket Water Heat Exchanger 2B2	03/20/2023
		122903568	Visual Inspection and Evaluation of 1-HTX-82-720B1-B, Emergency Diesel Generator Jacket Water Heat Exchanger 1B1	03/06/2023
71111.13	Engineering Evaluations	WBN-0-23-013	PRA Evaluation Response for Unexpected results in EOOS Software (Phoenix Risk Monitor) (Yellow) for ERCW Pumps	2/21/2023
71111.24	Procedures	0-SI-82-13	24 Hour Load Run - DG 1A-A	Revision 27
		0-TI-360.301	FLEX Intermediate Pressure (IP) Pump Performance Test for 0-PMP-360-511	Revision 2
		2-SI-3-901-A	Motor Driven Auxiliary Feedwater Pump 2A-A quarterly performance test	Revision 21