



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

May 7, 2024

David P. Rhoades
Senior Vice President
Constellation Energy Generation, LLC
President and Chief Nuclear Officer (CNO)
Constellation Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION – INTEGRATED INSPECTION REPORT
05000461/2024001

Dear David P. Rhoades:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Clinton Power Station. On April 17, 2024, the NRC inspectors discussed the results of this inspection with Norha Plumey, Site Vice President, 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 blue ink that reads "Robert Ruiz".

Signed by Ruiz, Robert
on 05/07/24

Robert Ruiz, Chief
Reactor Projects Branch 1
Division of Operating Reactor Safety

Docket No. 05000461
License No. NPF-62

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to David P. Rhoades from Robert Ruiz dated May 7, 2024.

SUBJECT: CLINTON POWER STATION – INTEGRATED INSPECTION REPORT
05000461/2024001

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

Docket Number: 05000461

License Number: NPF-62

Report Number: 05000461/2024001

Enterprise Identifier: I-2024-001-0069

Licensee: Constellation Nuclear

Facility: Clinton Power Station

Location: Clinton, IL

Inspection Dates: January 01, 2024 to March 31, 2024

Inspectors: J. Benjamin, Senior Resident Inspector
A. Muneeruddin, Resident Inspector
J. Murphy, Illinois Emergency Management Agency
J. Steward, Senior Resident Inspector

Approved By: Robert Ruiz, Chief
Reactor Projects Branch 1
Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Clinton Power 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

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

Additional Tracking Items

None.

PLANT STATUS

Unit 1 began the inspection period at rated thermal power (RTP). On March 9, 2024, Unit 1 lowered reactor power to 75 percent RTP to perform a planned control rod sequence exchange and main steam isolation valve (MSIV) surveillance testing. On March 10, 2024, the unit returned to RTP. On March 24, 2024, Unit 1 lowered reactor power to 75 percent RTP to perform planned MSIV surveillance testing and perform data gathering to confirm results of testing of inboard MSIV 1B21-F022D close limit switch, which failed surveillance testing on March 9, 2024. Inboard MSIV 1B21-F022D valve operated satisfactorily, however the limit switch failed to provide an input to the reactor protection system upon valve closure. Following completion of activities requiring reduced reactor power, the unit was returned to RTP on March 24, 2024, and continued to operate 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 cold temperatures for the following systems: diesel fire pumps 'A' and 'B', FLEX system equipment, and divisions 1, 2, and 3 of shutdown service water on January 31, 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) diesel fire pumps 'A' and 'B' on January 31, 2024

- (2) fire protection jockey pump skid in the makeup water pump house on February 7, 2024
- (3) high-pressure core spray during low-pressure core spray system outage window on March 14, 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 CB-5a and CB 5-b, control building, elevation 781', division 3 switchgear and battery room on January 17, 2024
- (2) Fire Areas M-1, M-2(a) and M-2(b), elevation 699', screen house divisions 1, 2 and 3 service water (SX) pump rooms and tunnel on January 30, 2024
- (3) Fire Area M-4, elevation 699', screen house 'A' (north) fire pump room on January 30, 2024
- (4) Fire Area M-3, elevation 699', screen house 'B' (south) fire pump room on January 31, 2024
- (5) Fire Area D-10, diesel generator building, elevation 762', diesel generator (DG) heating ventilation and air conditioning (HVAC) equipment area and Unit 2 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 March 29, 2024.

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 a planned downpower to 75 percent RTP for MSIV surveillance testing on March 24, 2024.

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

- (1) The inspectors observed and evaluated licensed operator requalification simulator training on February 2, 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) division 3 switchgear heat removal loss of 120-volt alternating current control power due to loose connection on fuse block for condensing unit 1vx06cc per Work Order (WO) 5481695 on February 21, 2024

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (2 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) elevated online risk due to residual heat removal pump 'B' minimum flow valve, 1E12-F064B, planned system outage window on February 27, 2024
- (2) elevated online risk due to planned system outage window work on the 'B' reserve auxiliary transformer from March 19, 2024 to March 21, 2024

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (4 Samples)

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

- (1) division 3 switchgear and battery room temperature low on January 17, 2024
- (2) division 1 and division 2 diesel generator 12-cylinder and 16-cylinder fuel priming pump lube oil leakage catch containment installation per Action Request (AR) 4747072 on February 7, 2024
- (3) division 3 switchgear heat removal loss of control power per AR 4748580 on February 12, 2024
- (4) inboard main steam isolation valve (MSIV) 1B21-F022D failure to trip reactor protection system during surveillance testing per AR 4756831 on March 14, 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) main feeder breaker 1A1, trip hand switch repair per AR 4707150 on January 9, 2024
- (2) reactor recirculation hydraulic power unit subloop A-2 PMT following filter element replacement and lubrication of pump and motor coupling on February 12, 2024
- (3) residual heat removal pump 'B' minimum flow valve 1E12-F064B valve stroke and position verification following motor-operated valve thrust verification clean and inspect per WO 5251529-04 on February 28, 2024
- (4) diesel fire pump 'A' (1FP01PA) pressure transducer replacement per WO 5460717 on March 12, 2024

- (5) containment to secondary containment positioner actuator, 1VR004Y, PMT following repair and adjustment per WO 05414021-09 on March 14, 2024
- (6) control room chiller 'A' time delay relay replacement and PMT per WOs 5518353 and 5518353-03 on March 20, 2024
- (7) PMT of reserve auxiliary transformer 'B' load tap changer repairs per WOs 5414582-63, 5414583-64 and 5414582-69 on March 21, 2024

Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) exercise test of 1SX016B per WO 5273960 on February 13, 2024
- (2) standby gas train 'A' flow/heater operability per WO 5419353 on February 29, 2024
- (3) flex hale pump 'A' (1FX01PA) annual performance test per WO 5392379 on March 11, 2024

Inservice Testing (IST) (IP Section 03.01) (3 Samples)

- (1) division 3 fuel oil transfer pump operability in service test per WO 5415185 on February 16, 2024
- (2) reactor core isolation cooling (1E51-C001) high-pressure operability checks per WO 5421382 on February 22, 2024
- (3) low-pressure core spray valve operability checks per CPS 9052.02 on March 19, 2024

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

- (1) annual operational performance test of FLEX diesel generator 2, 1FX01KB, per WO 5323379 on February 21, 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) (1 Sample)

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

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (1 Sample)

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

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (1 Sample)

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

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 17, 2024, the inspectors presented the integrated inspection results to Norha Plumey, Site Vice President, and other members of the licensee staff.

THIRD PARTY REVIEWS

Inspectors reviewed the most recent WANO report for the Clinton site that was issued in August 2023.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Drawings	M05-1039, Sheet 1	Fire Protection (Screen House)	AX
		M05-1039, Sheet 2	Fire Protection Outdoor	AT
		M05-1039, Sheet 6	Fire Protection Pump House	AE
		M05-1074	P&ID High Pressure Core Spray (HP)	AH
	Procedures	CPS 3213.01V001	Fire Detection and Protection Valve Lineup	22d
		CPS 3309.01E001	High Pressure Core Spray Electrical Lineup	8b
		CPS 3309.01V001	High Pressure Core Spray Valve Lineup	11b
71111.05	Fire Plans	CPS 1893.04M353	781 Control Building Div 3 Switchgear and Battery Room	6b
		CPS 1893.04M523	762 Diesel Generator: Diesel Generator HVAC Equipment Area and Unit 2 Rooms Pre-Fire Plan	5c
		CPS 1893.04M800	699 Screen House: Div 1 SX Pump Room Pre-Fire Plan	5a
		CPS 1893.04M801	699 Screen House: Div 2 and 3 SX Pump Rooms and Tunnel Pre-Fire Plan	6a
		CPS 1893.04M802	699 Screen House: 'B' (South) Fire Pump Room Pre-Fire Plan	6a
		CPS 1893.04M803	699 Screen House: 'A' (North) Fire Pump Room Pre-Fire Plan	6b
	Miscellaneous	2024-05	Fire Drill Record	03/29/2024
71111.11Q	Miscellaneous	ESG LOR-OBE-001	Clinton Power Station Licensed Operator Training Simulator Exercise Guide	000
		Procedures	CPS 3005.01	Unit Power Changes
	CPS 3105.05		Generator (TG)	23e
	CPS 3302.01		Reactor Recirculation (RR)	39e

71111.13	Miscellaneous		Clinton Clean Energy Center Plan of the Day for February 26, 2024	02/26/2024
			Clinton Clean Energy Center Plan of the Day for March 19-21, 2024	03/21/2024
71111.15	Calculations	IP-M-0145	Evaluation of VX 30 Minute Time Delay Based on Temperature Rise Data	02/15/2024
		IP-M-0750	Evaluation of Division 3 Battery Room Temperature Upon Loss of Cooling	02/15/2024
	Corrective Action Documents	AR 4731207	Div 3 Switchgear and Battery Room Temperature Low	01/16/2024
	Engineering Evaluations	ECR 461451		01/19/2024
		ECR 461739	Division III VX Past Operability Concern	02/09/2024
	Miscellaneous	1501, 1502	Transient Combustible Permits	02/07/2024
		ESOMS	ESOMS Operations Narrative Log	01/17/2024
	Operability Evaluations	CL1-22A-001	Paragon RICT Package for 1B21-F022D	03/14/2024
	Procedures	9382.01	125VDC Battery Pilot Cell Check	40
		ER-CL-600-2001	Clinton RICT System Guidelines	0
OP-AA-108-118		Risk Informed Completion Time	3	
71111.24	Miscellaneous	192858-21	PMRQ	03/11/2024
	Procedures	9000.01D001	Control Room Surveillance Log - Mode 1,2,3 Data Sheet	59b
		9061.06C013	Div 2 Fuel Pool Makeup Isol Valve Operability (SX in Service) Checklist	37b
		9061.06D013	Div 2 Fuel Pool Makeup Isol Valve Operability (SX in Service) Data Sheet	36
		9080.12	Fuel Oil Transfer Pump Operability	38
		CPS 3862.01	Flex Diesel Generator Operation	2
		CPS 9052.02	Low-Pressure Core Spray Valve Operability Checks	33d
		CPS 9052.02D001	LPCS Valve Operability Data Sheet	31f
		CPS 9067.01	Standby Gas Treatment System Train Flow/Heater Operability	32c
	CPS 9071.02	Diesel Fire Pump Capacity Checks	45d	
Work Orders	Various Work Orders for LPCS Maintenance and Testing	WOs 5351118, 5295740, 5467196		

		WO 5199261	EM 9381.01LP1 MOV Therm Ovrld Byp Verif 1E21F001,11,12	03/19/2024
		WO 5350821	9071.02R20 OP Fire Pump A Capacity/Controls Test	03/12/2024
		WO 5414582-57	Verify RAT 'B' Load Tap Changer in Manual	03/21/2024
		WOs 52440299 and 5273960	Work Orders for 1SX016B Valve Exercise Testing	02/13/2024
		WOs 5383684, 5384182 and 5415178	Various Reactor Recirculation A-2 Subloop Work Orders	02/12/2024
		WOs 5518353 and 5518353-03	Replace VC Chiller A Program Timer Relay, 0KYVC019	03/20/2024
71151	Corrective Action Documents	AR 4680584	Drywell Floor Drain in Leakage High After Startup from C1M26	10/13/2023
	Miscellaneous	AC-RF-2306-0001	Adverse Condition Monitoring and Contingency Plan - Elevated Drywell Floor Drain Leakage	05/25/2023
		LS-AA-2001	Collection and Reporting of NRC ROP Performance Indicator Data	17
	Procedures	NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7