



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

July 27, 2022

Mr. David 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
05000461/2022002

Dear Mr. Rhoades:

On June 30, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Clinton Power Station. On July 7, 2022, the NRC inspectors discussed the results of this inspection with Mr. T. Chalmers, 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 dark ink, appearing to read "Robert Ruiz".

Signed by Ruiz, Robert
on 07/27/22

Robert Ruiz, Chief
Branch 1
Division of Reactor Projects

Docket No. 05000461
License No. NPF-62

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

Letter to David Rhoades from Robert Ruiz dated July 27, 2022.

SUBJECT: CLINTON POWER STATION – INTEGRATED INSPECTION REPORT
05000461/2022002

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 05000461

License Number: NPF-62

Report Number: 05000461/2022002

Enterprise Identifier: I-2022-002-0046

Licensee: Constellation Nuclear

Facility: Clinton Power Station

Location: Clinton, IL

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

Inspectors: J. Beavers, Senior Resident Inspector
C. Mathews, Illinois Emergency Management Agency
D. Turpin, Reactor Engineer

Approved By: Robert Ruiz, Chief
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 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 and remained at or near rated thermal power 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

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (1 Sample)

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

- (1) 'A' residual heat removal train on April 12 to 14, 2022

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (2 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) 778 Containment East Prefire Plan on January 28, 2022
- (2) 778 Containment West Prefire Plan on January 28, 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 a reactivity change on May 21, 2022.

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

- (1) The inspectors observed and evaluated out-of-the-box simulator training on May 17, 2022.

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 remain capable of performing their intended function:

- (1) Division 1 emergency diesel generator shutdown service water pipe repair on April 13, 2022

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 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) 5206687, "Division 1 Emergency Diesel Generator Shutdown Service Water Pipe Repair"
- (2) WO 4956908, "Division 1 Residual Heat Removal Heat Exchanger System Outage Window"
- (3) WO 5237606, "Residual Heat Removal B Pump Operability"

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) Action Request (AR) 4489696, "Division 2 Emergency Diesel Generator Issues"
- (2) AR 4491835, "Unexpected Main Control Room Annunciator 5067-2D Main Steam Line Pressure Low"
- (3) AR 4493580, "Fire Pump B Running Speed High Out of Specification"
- (4) AR 4493041, "Unexpected Maximum Fraction of Limiting Power Density and Maximum Average Planar Ratio Online/Offline Bias Trend"
- (5) AR 4495830, "Lower Containment Outer Door Equalizing Valve Found Open"
- (6) AR 4507841, "Division 1 Emergency Diesel Generator 12 Cylinder Lube Oil Temp Low"

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) containment floor drain sump pumping to containment equipment sump temporary modification on May 25, 2022
- (2) disable 1B21F041L and 1B21F041C inputs for safety-relief valve monitoring system annunciator on May 25, 2022

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

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

- (1) WO 4974727-05, "1B1 Reserve Breaker Swap"
- (2) WO 5206687-07, "Division 1 Emergency Diesel Generator Shutdown Service Water Pipe Repair"
- (3) WO 5223317-02, "828' Containment Inner Door"
- (4) WO 4806063-11, "Division 2 Standby Gas Treatment System Cooling Water Flow"
- (5) WO 5119146, "RHR Pump 1C Suction Valve"

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) WO 5077841, "Division 2 Emergency Diesel Generator 24 HR RUN AND HOT RESTART"
- (2) WO 5100619, "Division 2 Standby Gas Treatment Train Deluge Valve Operability"

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Clinton Power Station (CPS) 9015.01, "Standby Liquid Control Pump B Surveillance Test," April 1, 2022

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

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

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

MS07: High Pressure Injection Systems (IP Section 02.06) (1 Sample)

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

MS08: Heat Removal Systems (IP Section 02.07) (1 Sample)

- (1) Unit 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) review and assessment of the corrective actions from FLEX equipment testing issues July 1, 2021, through June 30, 2022
- (2) review and assessment of the corrective actions of shutdown service water leakage issues from July 1, 2021, through June 30, 2022

INSPECTION RESULTS

Observation: Review and Assessment of the Corrective Actions from FLEX Equipment Testing Issues July 1, 2021, through June 30, 2022	71152A
<p>The inspectors performed a detailed review and assessment of the licensee's corrective actions for several issues that were identified during FLEX surveillance testing over the past year. The inspectors' reviews included, but were not limited to, the following ARs:</p> <ul style="list-style-type: none">• AR 4476860, "FLEX B Generator Run Difficulties"• AR 4466948, "FLEX B Generator Run Procedure Enhancements"• AR 4477755, "FLEX A Booster Pump Indication Issue"• AR 4477887, "FLEX A Booster Pump Run Issues"• AR 4476860, "FLEX B Generator Failure to Accelerate"• AR 4476860, "FLEX B Generator Fuel Oil Leak" <p>The inspectors reviewed the transition from contractor performed to operator performed surveillances on the FLEX equipment. Necessary enhancements to both procedures and operator training were observed during the review period. Performance challenges with consistent starting and operation of the generators were noted. Additionally, placement and operation of the booster pumps, which were impacted by equipment issues, also complicated surveillance performance. Component failures occurred and were addressed according to corrective maintenance processes. Enhancement to surveillance processes combined with additional training eliminated issues with equipment lineup and surveillance performance. The past several months' surveillances identified no new issues or necessary enhancements to either process or training.</p> <p>The inspectors did not identify any findings or violations of NRC requirements during their review.</p>	

Observation: Review and Assessment of the Corrective Actions of Shutdown Service Water Leakage Issues from July 1, 2021, through June 30, 2022	71152A
<p>The inspectors performed a detailed review and assessment of the licensee's corrective actions for leakage that were identified in the shutdown service water system over the past year. The inspectors' reviews included, but were not limited to, the following ARs:</p> <ul style="list-style-type: none"> • AR 4463901, "1SX208B RHR HX 1B Relief Valve Leaking" • AR 4473840, "Leak by Caused Fuel Pool Cooling Heat Exchanger to Drain" • AR 4506255, "Leak Downstream of 0SX009 B Drywell Cooler" <p>While none of these issues caused an inoperability of their related systems, structures or components, the resident inspector office remains vigilant with issues regarding the identification and resolution of shutdown service water system degradation and impact. The inspectors did not identify any findings or violations of NRC requirements during their review.</p>	

EXIT MEETINGS AND DEBRIEFS

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

- On July 7, 2022, the inspectors presented the integrated inspection results to Mr. T. Chalmers, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Corrective Action Documents	AR 4493099	NRC ID of Cleanliness Issues of RHR A Pump Room	04/14/2022
	Procedures	CPS 3312.01	Residual Heat Removal	48
71111.05	Fire Plans	CPS1893.04M230	778 Containment East Prefire Plan	5
		CPS1893.04M231	778 Containment West Prefire Plan	5
71111.12	Work Orders	WO 5206687	Repair Leak Downstream of 1SX063A	04/13/2022
71111.13	Work Orders	WO 4956908	Division 1 Residual Heat Removal Heat Exchanger System Outage Window	05/20/2022
		WO 5237606	RHR B Pump Operability	06/01/2022
71111.15	Corrective Action Documents	AR 4489696	Division 2 EDG Issues	04/04/2022
		AR 4491835	Unexpected MCR Ann 5067-2D Main Steam Line Pressure Low	04/09/2022
		AR 4493041	Unusual MFLPD Online/Offline Bias Trend Seen for CPSC21	04/12/2022
		AR 4493580	Fire Pump B Running Speed HOOS	04/05/2022
		AR 4495830	Lower Containment Outer Door Equalizing Valve Found Open	04/26/2022
		AR 4507841	Division 1 Diesel Generator 12 Cylinder Lube Oil Temperature Low	06/27/2022
	Procedures	CPS 9071.01B	Diesel Driven Fire Pump B Functionality Test	0f
	Work Orders	WO 5239919	9071.01B21 OP Fire Pump B OPER	04/05/2022
71111.18	Engineering Changes	EC 636596	Eliminate Nuisance Alarms for SRV Acoustic Monitors	05/25/2022
	Work Orders	WO 5262383	Simple Troubleshooting Rise Notd in Drywell RF Inleakge	0
71111.19	Work Orders	WO 4806063-11	Division 2 Standby Gas Treatment System Cooling Water Flow	05/12/2022
		WO 4974727-05	1B1 Reserve Feeder Breaker PMT	04/01/2022
		WO 5100619	9061.06C014, Div 2 VG Train Deluge Valve Operability	
		WO 5206687-07	1SX04AA VT2 Maintenance PMT	04/13/2022
		WO 5223317-02	828' Containment Inner Door Post Maintenance Test	04/15/2022
71111.22	Work Orders	WO 5077841	OP 9080.13 DG 1B 24 HR RUN AND HOT RESTART	04/27/2022