



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

April 26, 2021

Mr. David Rhoades
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION – INTEGRATED INSPECTION REPORT
05000461/2021001

Dear Mr. Rhoades:

On March 31, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Clinton Power Station. On April 8, 2021, 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,

/RA/

Kenneth R. Riemer, 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 Kenneth Riemer dated April 26, 2021.

SUBJECT: CLINTON POWER STATION – INTEGRATED INSPECTION REPORT
05000461/2021001

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

Docket Number: 05000461

License Number: NPF-62

Report Number: 05000461/2021001

Enterprise Identifier: I-2021-001-0025

Licensee: Exelon Generation Company, LLC

Facility: Clinton Power Station

Location: Clinton, IL

Inspection Dates: January 01, 2021 to March 31, 2021

Inspectors: J. Beavers, Senior Resident Inspector
J. Cassidy, Senior Health Physicist
J. Murphy, Illinois Emergency Management Agency
D. Sargis, Resident Inspector

Approved By: Kenneth R. Riemer, 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

Type	Issue Number	Title	Report Section	Status
LER	05000461/2020-002-00	LER 2020-002-00 for Clinton Power Station, Unit 1, Simultaneous Inoperability of Main Control Room Ventilation Subsystems 'A' and 'B'	71153	Closed
LER	05000461/2020-003-00	LER 2020-003-00 for Clinton Power Station, Unit 1, Reactor Core Isolation Cooling System Card Fuse Failure Results in a Condition Prohibited by Technical Specifications and That Could Have Prevented Fulfillment of a Safety Function Needed to Control the Release of Radioactive Material	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at rated thermal power. On March 24, 2021, the unit was down powered to 50 percent power to repair condenser tube leaks. The unit was returned to rated thermal power on March 27, 2021, 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 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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the Coronavirus Disease 2019 (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week; conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status"; observed risk-significant activities; and completed on-site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or portions of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on-site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

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) Division 3 battery and direct current distribution on March 9, 2021
- (2) Division 2 emergency diesel generator on March 17, 2021

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 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 Zone CB-2, Division 2 cable spreading room, elevation 781', on February 9, 2021
- (2) Fire Zone CB-4, Division 1 cable spreading room, elevation 781', on February 9, 2021
- (3) Fire Zone F-1a, fuel building basement general area, elevation 712', on March 17, 2021
- (4) Fire Zone A-3f, Division 2 switchgear room, elevation 781', on March 17, 2021

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) ultimate heat sink sedimentation inspection

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 electrical back seating of the reactor core isolation cooling inboard steam supply valve on January 6, 2021.

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

- (1) The inspectors observed and evaluated licensed operator training in the classroom during the Clinton Power Station reactor coolant resin intrusion case study on January 28, 2021.

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) shutdown service water system on February 26, 2021

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) elevated risk for electrically backseating valve 1E51F063 on January 6, 2021
- (2) Work Order 4951660, "Risk Determination for 0SA01D Service Air Dryer Out of Service"
- (3) 'B' residual heat removal system outage window on March 3, 2021
- (4) condensate polisher resin strainers on March 26, 2021

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) reactor core isolation cooling inboard steam supply valve electrical back seating on open seat
- (2) Action Request 4384546, "Received Unexpected MCR [main control room] Annunciator 5067-8L SRV [safety-relief valve] MON Sys Trbl"
- (3) Action Request 4394695, "0VC13CA Refrigerant Out of Specification"

71111.19 - Post-Maintenance Testing

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

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

- (1) Work Order 5004218, "Fire Pump 'A' Capacity Test After Replacement of Starting Solenoids"
- (2) Work Order 4925992, "Alarm Test After Module Replacement on 1FP43J Fire Protection Panel"
- (3) Work Order 4972949, "Perform Thrust Verification and MOV [motor-operated valve] Clean and Inspect on 1E12F003B"
- (4) Work Order 4974728, "Swap Breaker for 1E12C002C, Cubical Checks, and Relay Functional Tests"
- (5) Work Order 4884347, "Drywell Chiller 'A' Restoration and Post Maintenance Test"

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

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

- (1) 'C' diesel generator operability and manual quick start on March 12, 2021
- (2) Work Order 4680099, "Division 1 Battery Charger Load Test"

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Work Order 5108969, "Control Room Chiller 'A' Valve Operability Test"

RADIATION SAFETY

71124.02 - Occupational ALARA Planning and Controls

Radiological Work Planning (IP Section 03.01) (4 Samples)

The inspectors evaluated the licensee's radiological work planning for the following activities:

- (1) drywell scaffolding activities during Refueling Outage (RO) C1R19
- (2) drywell bioshield inservice inspection activities during RO C1R19
- (3) drywell emergent work during RO C1R19
- (4) balance of plant emergent work during RO C1R19

Verification of Dose Estimates and Exposure Tracking Systems (IP Section 03.02) (4 Samples)

The inspectors reviewed the following as low as reasonably achievable planning documents and radiological outcome evaluations:

- (1) Radiation Work Permit CL-1-19-00506 and associated ALARA documents for drywell scaffolding activities during RO C1R19
- (2) Radiation Work Permit CL-1-19-00518 and associated ALARA documents for drywell bioshield inservice inspection activities during RO C1R19
- (3) Radiation Work Permit CL-1-19-00543 and associated ALARA documents for drywell emergent work during RO C1R19
- (4) Radiation Work Permit CL-1-19-00626 and associated ALARA documents for balance of plant emergent work during RO C1R19

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 03.01) (1 Sample)

- (1) Unit 1 (January 1, 2020 – December 31, 2020)

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 03.02) (1 Sample)

- (1) Unit 1 (January 1, 2020 – December 31, 2020)

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 03.03) (1 Sample)

- (1) Unit 1 (January 1, 2020 – December 31, 2020)

71153 – Follow-up of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (2 Samples)

The inspectors evaluated the following licensee event reports (LERs):

- (1) LER 05000461/2020-002-00, Simultaneous Inoperability of Main Control Room Ventilation Subsystems 'A' and 'B' (ML 21063A252). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER therefore no performance deficiency was identified. The inspectors did not identify a violation of NRC requirements.
- (2) LER 05000461/2020-003-00, Reactor Core Isolation Cooling System Card Fuse Failure Results in a Condition Prohibited by Technical Specifications and That Could Have Prevented Fulfillment of a Safety Function Needed to Control the Release of Radioactive Material. The inspection conclusions associated with this LER are documented in this report under Inspection Results Section 71153.

INSPECTION RESULTS

Minor Violation	71153
Minor Violation: A Division 2 reactor core isolation cooling electronics card failed due to an internal blown fuse on December 21, 2020. On December 26, 2020, the failure was identified, replaced, and satisfactorily tested with operability returned within the same shift. Specifically, from December 21 through December 26, 2020, Technical Specification (TS) 3.3.6.1, Action D.1, 24-hour action statement was exceeded with no action taken.	
Screening: The inspectors determined the performance deficiency was minor. The inspectors determined the isolation safety function was maintained through procedural driven manual isolation actions in the control room for the entirety of the time in question.	
Enforcement: This failure to comply with TS 3.3.6.1 constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.	

EXIT MEETINGS AND DEBRIEFS

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

- On April 8, 2021, the inspectors presented the integrated inspection results to Mr. T. Chalmers, Site Vice President, and other members of the licensee staff.
- On February 4, 2021, the inspectors presented the radiation protection inspection results to Mr. F. Paslaski, Radiation Protection Manager, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Miscellaneous	MS-08.00	Lubrication Level of Rotating Equipment	3
	Procedures	CPS 3503.01	Battery and DC Distribution Electrical Line Up	14b
		CPS 3506.01C002	Diesel Generator 1B Pre-Start Checklist	12d
71111.05	Fire Plans	CPS 1893.04M130	781-790 Auxiliary: Div 2 Switchgear Prefire Plan	5b
		CPS 1893.04M350	781 Control: Div 2 Cable Spreading Room Prefire Plan	5d
		CPS 1893.04M352	781 Control: Div 1 Cable Spreading Room Prefire Plan	5d
		CPS 1893.04M400	712 Fuel: Basement Prefire Plan	5a
71111.07A	Miscellaneous	Report No. 42	Ultimate Heat Sink Sedimentation Monitoring Program	11/30/2020
71111.13	Miscellaneous	WW 2109	DIVISION 2 - Aggregate Risk Waterfall	03/01/2021
	Work Orders	WO 5037153	1E51-F063 - Electrically Backseat MOV	01/06/2021
71111.15	Corrective Action Documents	AR 4384546	Received Unexpected MCR Annunciator 5067-8L SRV MON Sys Trbl	11/15/2020
		AR 4394349	Result of Closing 1E51F063 for Troubleshooting	01/06/2021
		AR 4394695	0VC13CA Refrigerant Out of Specification	01/08/2021
	Work Orders	WO 4893703	9070.03A20 OP VC 'A' Heat Load Operability	10/14/2020
71111.19	Work Orders	WO 4875200	1VP04CA Chiller Inspections	03/21/2021
		WO 4925992	EM 1FP43J Troubleshoot/Rework/Replace	02/09/2021
		WO 4972949	Perform Thrust Verification and MOV Clean and Inspect on 1E12F003B	0
		WO 4974728	Swap Breaker for 1E12C002C, Cubical Checks, and Relay Functional Tests	0
		WO 5004218	9071.02 Fire Pump A Capacity/Controls Test	01/12/2021
71111.22	Work Orders	WO 4680099	9382.08 125 Vdc Charger Load Test (Div 1)	03/16/2021
		WO 5108969	OP 9170.02 VC-A Valve Operability	03/16/2021
		WO 5126353	9080.03A23 Op DG 1C Oper - Monthly Test	0
71124.02	Corrective Action	AR 4228303	RPID: Work Impacted by Elevated Dose Rates in Vessel	03/11/2019

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents	AR 4277962	RPID Potential C1R19 Dose Savings	09/10/2019
		AR 4339189	RPID: ALARA Concern Associated with the Work Not Complete	04/28/2020
		AR 4360147	RPID: Lessons Learned from ALARA Post Job Review	07/31/2020
	Miscellaneous		Refuel Outage Report Fall 2019 C1R19 RP/ALARA Clinton Power Station	
	Radiation Work Permits (RWPs)	CL-1-19-00506	CLR19 DW Scaffolding Activities and Associated ALARA Documents	Multiple Dates
		CL-1-19-00518	C1R19 DW Bioshield ISI Activities and Associated ALARA Documents	Multiple Dates
		CL-1-19-00543	C1R19 DW Emergent Work and Associated ALARA Documents	Multiple Dates
		CL-1-19-00626	C1R19 BOP Emergent Work and Associated ALARA Documents	Multiple Dates
	Self-Assessments	AR 4379518	Pre-NRC 71124.02 Occupational ALARA Planning and Controls	12/11/2020
	71153	Work Orders	WO 5110662	Unexpected RCIC Response During Surveillance