



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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January 27, 2023

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 – BIENNIAL PROBLEM IDENTIFICATION AND
RESOLUTION INSPECTION REPORT 05000461/2022011

Dear David Rhoades:

On December 2, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Clinton Power Station and discussed the results of this inspection with T. Chalmers, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's problem identification and resolution program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for problem identification and resolution programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally, the team reviewed the station's programs to establish and maintain a safety-conscious work environment and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews the team found no evidence of challenges to your organization's safety-conscious work environment. Your employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

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 Ruiz, Robert
on 01/27/23

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 Rhoades from Robert Ruiz dated January 27, 2023.

SUBJECT: CLINTON POWER STATION – BIENNIAL PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000461/2022011

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

Docket Number: 05000461

License Number: NPF-62

Report Number: 05000461/2022011

Enterprise Identifier: I-2022-011-0043

Licensee: Constellation Nuclear

Facility: Clinton Power Station

Location: Clinton, IL

Inspection Dates: November 14, 2022 to December 02, 2022

Inspectors: T. Hartman, Senior Project Engineer
E. Magnuson, Reactor Inspector
A. Muneeruddin, Resident Inspector
E. Rosario, Reactor 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 a biennial problem identification and resolution 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.

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.

OTHER ACTIVITIES – BASELINE

71152B - Problem Identification and Resolution

Biennial Team Inspection (IP Section 03.04) (1 Sample)

- (1) The inspectors performed a biennial assessment of the effectiveness of the licensee's Problem Identification and Resolution program, use of operating experience, self-assessments and audits, and safety-conscious work environment.
 - **Problem Identification and Resolution Effectiveness:** The inspectors assessed the effectiveness of the licensee's Problem Identification and Resolution program in identifying, prioritizing, evaluating, and correcting problems. The inspectors also conducted a 5-year review of the reactor core isolation cooling system. In addition, the inspectors reviewed any corrective actions related to the White Notice of Violation (NOV) in the Security cornerstone that were completed since the Inspection Procedure 95001 Supplemental Inspection was completed.
 - **Operating Experience:** The inspectors assessed the effectiveness of the licensee's processes for use of operating experience.
 - **Self-Assessments and Audits:** The inspectors assessed the effectiveness of the licensee's identification and correction of problems identified through audits and self-assessments.
 - **Safety-Conscious Work Environment:** The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety-conscious work environment.

INSPECTION RESULTS

Assessment	71152B
<p>Based on the samples reviewed, the team concluded that the licensee's implementation of the Corrective Action Program (CAP) was generally effective and supported nuclear safety.</p> <p><u>Effectiveness of Problem Identification:</u></p> <p>Based on the samples reviewed, the team concluded that the licensee continued to identify issues at a low threshold and appropriately entered these issues into the CAP. The team determined that the licensee usually entered problems into the CAP in a timely manner and with adequate information. However, the team identified a condition adverse to quality that should have been identified and entered into the CAP for resolution. Additional details of this issue are discussed in the Minor Violation section of this report.</p> <p>The team also noted that some deficiencies were identified by external organizations, including the NRC, that had not been previously identified by licensee staff and were subsequently entered into the CAP. In addition, the licensee also utilized a number of CAP support processes to identify problems, including the self-assessment and audit process and the operating experience program. For example, the licensee performed department self-assessments and quality assurance audits to identify issues in station processes. Similarly, the licensee screened issues from both NRC and industry operating experience and entered them into the CAP when they were applicable to the station.</p> <p>The team determined that the licensee was generally effective at trending low-level issues and taking appropriate corrective actions to prevent more significant problems from developing. In addition, the licensee used the CAP to document instances in which previous corrective actions were ineffective or were inappropriately closed.</p> <p>The team performed a 5-year review of the reactor core isolation cooling (RCIC) system issues. As part of this review, the team interviewed engineers, reviewed the system health and maintenance rule information, and reviewed selected corrective actions and condition evaluation documents. The team concluded that issues with RCIC were identified and entered into the CAP at a low threshold and were resolved in a timely manner commensurate with their safety significance. For the areas walked down, the team did not identify any additional issues.</p> <p><u>Effectiveness of Prioritization and Evaluation of Issues:</u></p> <p>The inspectors reviewed items in the CAP to ensure thorough and timely evaluation of identified issues, including disposition of operability and reportability issues. Causal products were evaluated for consideration of extent of condition and cause associated with identified root and contributing causes. These products were also reviewed for consideration of potential generic implications, common-cause concerns, and evaluation of previous occurrences of issues.</p> <p>Based on the samples reviewed, the team determined that licensee performance was generally effective at prioritizing and evaluating issues commensurate with the safety significance of the identified problem. The station ownership committee and the management review committee meetings were generally thorough and intrusive in reviewing issues and prioritizing actions. In addition, the team observed a healthy dialogue between the members</p>	

of these committees and the members challenged each other when dispositioning issues.

In general, once a degraded or non-conforming condition was identified, the CAP directed that an equipment operability or functionality review be performed. As a result, most of the samples reviewed were evaluated appropriately and in a timely manner.

Effectiveness of Corrective Actions:

Based on the samples reviewed, the team determined that the licensee was generally effective in corrective action implementation. In general, corrective actions for deficiencies that were safety significant were implemented in a timely manner. Problems identified using a root cause or other cause methodologies were resolved in accordance with CAP requirements. The corrective actions assignments that were sampled by the team for selected NRC documented violations and for licensee event reports (LERs) were generally effective and timely.

Assessment

71152B

Based on a review of documents and interviews with licensee staff, the team did not identify any impediment to the establishment of a safety-conscious work environment. The team reviewed the results from the 2021 Safety Culture Assessment, the culture survey from the first quarter of 2021 performed by the licensee, and the Nuclear Safety Culture Monitoring Panel meeting minutes. The team also conducted one-on-one interviews with 21 licensee staff concerning the effectiveness of the CAP, the ability to raise issues, and the freedom from potential retaliation for raising issues.

In general, the licensee's staff was aware of and familiar with the CAP and other processes, such as the Employee Concerns Program, to raise nuclear safety concerns. Licensee staff indicated they could raise safety concerns without a fear of retaliation. Through the interviews and document reviews, the team was not provided or identified any examples of retaliation for raising nuclear safety concerns. The staff interviewed believed that operational issues and issues with high safety significance were being appropriately addressed in a timely manner.

Assessment

71152B

The inspectors reviewed the licensee's operating experience program to ensure items are adequately evaluated for applicability, and applicable lessons learned are communicated to appropriate organizations and implemented as appropriate.

Based on the samples reviewed, the team determined that the licensee's performance in the use of operating experience was generally effective. The licensee screened industry and NRC operating experience information for applicability to the station. When applicable, actions were developed and implemented to prevent similar issues from occurring. Operating experience lessons learned were communicated and incorporated into plant operations. The team observed the information being used in daily activities, such as pre-job briefs, as well as issue reviews and investigations.

The team did identify that the licensee has a tendency to use a narrow scope when evaluating whether the operating experience applies to the station or not. This can lead to missing valuable insights from across the industry.

Assessment	71152B
<p>The inspectors reviewed a sample of completed self-assessments and audits conducted by licensee personnel, corporate personnel, the nuclear oversight group, and external organizations. The products reviewed included assessments of each of the cornerstone areas and CAP specific items.</p> <p>Based on the samples reviewed, the team determined that the licensee's performance of self-assessments and audits was generally effective. The licensee performed department self-assessments and nuclear oversight audits throughout the organization on a periodic basis. These self-assessments and audits were generally effective at identifying issues and enhancement opportunities at an appropriate threshold. The self-assessments and audits reviewed by the team identified issues that were not previously known, including issues within the CAP itself. The team did not identify any concerns in this area.</p>	

Minor Violation	71152B
<p>Minor Violation: On November 16, 2022, while performing a plant tour, the NRC inspectors identified a valve inside containment, which was labeled as "Locked Open," without a locking device. The valve is associated with the 'B' train of the H2/O2 monitoring system and is also associated with containment penetration 153. This valve is locked open to ensure a flow path is available from the containment and drywell areas to the monitoring portion of the system. The licensee acknowledged that the valve was required to be locked open, entered the issue into their CAP, and promptly locked the valve in the open position.</p> <p>The last known operation of this component was after a local leak rate test in December 2019. After the licensee completed required local leak rate testing of penetration 153, the procedure directs the operator to realign the system in accordance with CPS 3315.01V001, "Containment Monitoring Valve Lineup," which directs the valve to be restored to the "Locked Open" position. This component, as well as the procedures are all identified as safety-related. This means the valve has potentially been in the incorrect position (not locked) for 3 years and not identified by the licensee. However, the licensee had previously stopped using this train of H2/O2 monitoring and no longer took credit for it in their analyses.</p> <p>The inspectors determined that the failure to perform a safety-related procedure, as written, was a performance deficiency and a violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings."</p> <p>Screening: The inspectors determined the performance deficiency was minor. This performance deficiency did not adversely affect the mitigating cornerstone objective because the valve was still open and would allow process flow (as required). In addition, this train of the system is no longer in use nor credited for use.</p> <p>Enforcement: This failure to comply with 10 CFR 50, App. B, Criterion V constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.</p>	

EXIT MEETINGS AND DEBRIEFS

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

- On December 2, 2022, the inspectors presented the biennial problem identification and resolution inspection results to T. Chalmers, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Corrective Action Documents	AR 1040993	Perform PHC Presentation for RCIC Water Hammer Solutions	03/10/2010
		AR 1594407	Automatic Trip of Breaker 1AP07EJ	12/09/2013
		AR 4020569	Manual Reactor Scram due to Loss of Feedwater Heating	06/11/2017
		AR 4082490	Reactor Scram from Trip of 1AP07EJ	12/09/2017
		AR 4232132	DBAI. Calculation Updates Missed During LAR Impact Review	03/22/2019
		AR 4233486	DBAI. Missing Evaluation for RCIC Piping Stresses at EOP CO	03/27/2019
		AR 4233500	DBAI. Calc 01r116 Contains Incorrect Reference and Value	03/27/2019
		AR 4279730	Both Divisions of RT Differential Flow Failed Downscale	12/05/2019
		AR 4284526	E OID SRV 51B Actuates Instead of 41B	10/03/2019
		AR 4311701	Scheduled Work Could Not Be Performed	01/21/2020
		AR 4313467	Out of Tolerance Trend for 4.16kV Degraded Voltage Relays	01/28/2020
		AR 4329201	Entered Loss of Feedwater Heating 4A Heater Restoration	03/24/2020
		AR 4361015	Reactor Power Increased About 8 MWth After CP Swap	08/04/2020
		AR 4362498	MCR Alarm 5002-3P for P612 Hardware Fault on Drop 5	08/11/2020
		AR 4365244	NOS Finding: Corrective Actions from 2018 ARMA Ineffective	08/25/2020
		AR 4371658	1E51-F077 Indicates Mid Position After Trying to Stroke	09/24/2020
		AR 4376308	OE: Hand Injury Requiring Treatment Beyond First Aid	10/13/2020
		AR 4378023	OE: Rx Wtr Clean Up Precoat Lost	02/04/2021
		AR 4383622	OE: Truck Drives Over Trenches Breaking Covers	11/11/2020
		AR 4384779	0VC21YB 0VC24YB & 0VC27YB Lost Power	11/16/2020
		AR 4384784	Annunciator for 5050-8L is Dimly Lit	11/16/2020
		AR 4385961	4.0 Critique 4008.01 Abnormal Reactor Coolant Flow	11/18/2020
		AR 4390634	GNF 3 Transition for Cycle 21 Issue with TBSOOS Condition	12/16/2020
		AR 4394349	Result of Closing 1E51F063 for Troubleshooting	01/05/2021
		AR 4407380	Trend IR - ILT 19-1 Throughput	03/08/2021
		AR 4409255	ILT Weekly Review Exam Compromise	03/15/2021
		AR 4411326	RCS Reactor Sulfates Action Level > AL-2 Conductivity >	03/24/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			AL-1	
		AR 4421018	OE: Underground Piping Leak on Plant Service Water System	05/03/2021
		AR 4425550	OE: HPCI - RCIC Not Aligned Prior to Entering Tech Spec App	11/16/2020
		AR 4426700	RR FCV 'B' 1B33F060B Drift and Saturation Issues	05/31/2021
		AR 4428969	Div 3 Undervoltage Relays Fail As Found Testing	06/12/2021
		AR 4444360	OE: Power Reduction After FW Pump Trip and RFCV Runback	05/15/2021
		AR 4447019	NOS ID: ARMA - MRule Program Requires Management Attention	09/17/2021
		AR 4450317	C1R20 Snubber 1R18002S Failed Functional Test	10/02/2021
		AR 4450450	A Fuel Bundle Was Placed in NW Quadrant with SRM A INOP	10/03/2021
		AR 4451945	Loss of ERAT	10/09/2021
		AR 4452166	Fuel Bundle Inadvertent Contact with the Steam Dam	10/11/2021
		AR 4460431	Observed Reactor Water Clean Up Efficiency not as Expected	12/28/2021
		AR 4464995	9443.04 Under WO# 4935743 was not Completed by PM Late Date	12/06/2021
		AR 4476101	NOS ID Finding Part 1 of 2: MD Failed to Maint Control M&TE	02/04/2022
		AR 4478345	NRC Green NCV 2021004-02 Integrated Inspection Report	02/15/2022
		AR 4478357	NRC Green Finding 2021004-01 Integrated Inspection Report	02/15/2022
		AR 4487680	NRC ID: Teletower in RCIC Room	03/27/2022
		AR 4495747	WHR Violation Covered Worker Exceeded 54 Hours/Week	03/27/2022
		AR 4504335	VP Chiller A (1VP04CA) Trip	08/16/2022
		AR 4504884	NRC Green NCV 2022010-01 DBAI Inspection Report	06/10/2022
		AR 4504887	NRC Green NCV 2022010-01 DBAI Inspection Report	06/10/2022
		AR 4511806	ENG ID: Trend IR for Meeting Attendance	07/19/2022
		AR 4522105	OE: Halon Actuation due to Human Performance Error	09/13/2022
		AR 4524044	Trend: 1 Near Miss & 2 Ops CC Events in Less Than	09/22/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			3 Months	
		AR 4537387	Spike in DW RF from Sump	11/15/2022
		AR 4537476	MWPH: Upflow Filter Logic Error	11/15/2022
		AR 521373	OE23020 Potential for RCIC Water Hammer - Nine Mile Point 2	08/18/2006
	Corrective Action Documents Resulting from Inspection	AR 4537383	NRC Identified Missing Lock Wire on 1CM019	11/16/2022
		AR 4537468	NRC ID: PI&R Inspection: CAPE 4362498 Actions not Generated	11/16/2022
		AR 4537691	PI&R NRC Found Damaged Insulation on Duct Work near 1VX72Y	11/17/2022
		AR 4538360	NRC ID: Degraded Insulation CTMT (781', AZM 120) Line 1CY28C	11/21/2022
		AR 4539619	NRC ID: EFR 4311763-73 Is Not Updated with MRC Comments	11/29/2022
		AR 4539625	NRC ID: OPEX Review Didn't have Proper Closure Documentation	11/29/2022
		AR 4539854	ATI Improper Closeout led to Revisions Not Being Issued	11/30/2022
	Drawings	M05-1034, Sheet 2	P&ID Containment Monitoring System (CM)	K
	Miscellaneous		On-Line WO Backlog	11/17/2022
			Clinton Nuclear Safety Culture Review Meeting (NSCRM) Minutes	07/19/2022
			Root Cause: Fuel Bundle Placed in Core Without the Required SRM Operable	12/17/2021
		LER 2021-001-00	Core Monitoring System Software Modeling Error Results in Condition Prohibited by Technical Specifications	08/19/2021
		LER 2021-002-01	Core Alterations with Source Range Monitor Inoperable Results in Condition Prohibited by Technical Specifications	02/24/2022
		NOSA-CPS-21-05	Corrective Action Program Audit Report	09/22/2021
	Operability Evaluations	AR 4384720	0TSVC617A Output 2 OOT Trend Code B1	11/16/2020
		AR 4448556	ERAT LTC Failed to Control Voltage within Required Band	09/25/2021
		AR 4461964	~ 1/4 GPM Leak Downstream of 1SX063A	11/19/2021
	Procedures	CPS 3303.01	Reactor Water Cleanup (RT)	39C

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		CPS 3315.01V001	Containment Monitoring Valve Lineup	11D
		EI-AA-101	Employee Concerns Program	11
		EI-AA-101-1001	Employee Concerns Program Process	15
		ER-AA-320	Maintenance Rule Implementation per NEI 18-10	0
		ER-AA-320-1001	Maintenance Rule 18-10 - Scoping	0
		ER-AA-320-1003	Maintenance Rule 18-10 - Failure Definition	0
		ER-AA-320-1004	Maintenance Rule 18-10 - Performance Monitoring and Dispositioning Between (a)(1) and (a)(2)	1
		ER-AA-320-1006	Maintenance Rule 18-10 - Expert Panel Roles and Responsibilities	0
		ER-AA-320-1007	Maintenance Rule 18-10 - Periodic (a)(3) Assessment	1
		OP-AA-108-103	Locked Equipment Program	3
		OP-CL-108-103-1001	Locked Valve Lineup (Outside of Drywell)	2
		OP-CL-108-103-1001	Locked Valve Lineup (Outside of Drywell)	3
		PI-AA-1012	Safety Culture Monitoring	4
		PI-AA-115	Operating Experience Program	5
		PI-AA-120	Issue Identification and Screening Process	12
		PI-AA-125	Corrective Action Program (CAP) Procedure	8
		PI-AA-125-1003	Corrective Action Program Evaluation Manual	7
		PI-AA-126-1001	Self-Assessments	5
		WC-AA-106	Work Screening and Processing	20
	Self-Assessments	AR 4296535	2020 Clinton Clearance and Tagging Self-Assessment	11/22/2020
		AR 4425846	Ops Configuration Control Self Assessment	11/30/2021
		AR 4459608	Clinton Operations Training Comprehensive Self-Assessment	01/14/2022
	Work Orders	WO 4662767	MC153002 LLRT: H2/O2 Mon 1CM015B CT/DW Samp Rtrn, Test Set D	12/28/2019