UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2056 WESTINGS AVENUE, SUITE 400
NAPERVILLE, IL 60563-2657

June 16, 2025

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: QUAD CITIES NUCLEAR POWER STATION – SPECIAL INSPECTION REACTIVE REPORT 05000254/2025050

Dear David Rhoades:

On April 15, 2025, the U.S. Nuclear Regulatory Commission (NRC) completed its initial assessment of isolated reactor building-to-suppression chamber vacuum breakers at power, which occurred on April 5, 2025, at Quad Cities Nuclear Power Station. Based on this initial assessment, the NRC sent an inspection team to your site on May 12, 2025.

On May 23, 2025, the NRC completed its special inspection and discussed the results of this inspection with Doug Hild, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at Quad Cities Nuclear Power Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Quad Cities Nuclear Power Station.

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 Kozal, Jason
on 06/16/25

Jason Kozal, Director
Division of Operating Reactor Safety

Docket No. 05000254
License No. DPR-29

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to David Rhoades from Jason Kozal dated June 16, 2025.

SUBJECT: QUAD CITIES NUCLEAR POWER STATION – SPECIAL INSPECTION REACTIVE REPORT 05000254/2025050

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number:	05000254
License Number:	DPR-29
Report Number:	05000254/2025050
Enterprise Identifier:	I-2025-050-0002
Licensee:	Constellation Nuclear
Facility:	Quad Cities Nuclear Power Station
Location:	Cordova IL
Inspection Dates:	May 12, 2025 to May 16, 2025
Inspectors:	J. Beavers, Senior Resident Inspector T. Hartman, Senior Project Engineer J. Kepley, Operations Engineer C. St. Peters, Senior Project Engineer
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 special inspection at Quad Cities Nuclear 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

Failure to Restore Safety-Related Equipment After Testing			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000254/2025050-01 Open/Closed	[H.14] - Conservative Bias	93812
A self-revealed finding of very low safety significance (Green) and associated Non-Cited Violation (NCV) of Technical Specification (TS) 5.4.1, "Procedures," was identified when the licensee failed to implement procedures associated with local leak rate testing. Specifically, during a refueling outage, a licensed senior reactor operator (SRO) gave permission to leave valves in an abnormal configuration. As a result, the reactor building-to-suppression pool vacuum breakers remained unable to perform their automatic safety-related function and placed Unit 1 in a condition prohibited by TS 3.6.1.7, "Reactor Building-to-Suppression Chamber Vacuum Breakers," and Limiting Condition for Operations 3.0.4, operational MODE limitations.			

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.

INSPECTION RESULTS

Assessment	93812

Charter Item 1 - Establish a sequence of events related to the event.

On April 5, 2025, following a Quad Cities Nuclear Generating Station Unit 1 refueling outage, the licensee discovered that both trains of reactor building to suppression chamber vacuum breakers were simultaneously inoperable due to a configuration control event occurring during the restoration of the pressure suppression system following local leak rate testing (LLRT) during the outage. NRC Region III dispatched a Special Inspection Team (SIT) on May 12, 2025, to review the event in accordance with the SIT charter.

Detailed Sequence of Events:

The following timeline of events was established relative to the event:

3/16/2025	Initial local leak rate test (LLRT) was initiated in accordance with (IAW) procedure QCOS 0100-49 "Drywell/Torus Purge Supply Local Leak Rate Test" prior to planned maintenance.
03/27/2025 1600	Procedure QCOS 0100-49 "Drywell/Torus Purge Supply Local Leak Rate Test" was initiated. Valve 1-1601-84B was closed during this test to establish test boundary.
03/28/2025 1630	Procedure QCOS 0100-49 "Drywell/Torus Purge Supply Local Leak Rate Test" was completed. Valve 1-1601-84B was left closed, which isolated technical specification required instruments as well as the torus to drywell differential pressure control system instrumentation.
03/31/2025 1052	Station entered Mode 2 - Reactor Startup. This is the mode of applicability for Limiting Conditions for Operation (LCO) 3.6.1.7 and 3.3.3.1
03/31/2025 1330	Unit 1 Reactor is declared Critical
04/01/2025 1052	Station entered Mode 1 – Power Operations

04/01/2025	Day shift control room console logs for torus level indication LI-1640B was noted as being in excess of the TS Channel Check limits. Multiple prior days also indicated higher than normal deviations, but no tracking was initiated for inoperable technical specification indication, as required.
04/02/2025 2125	Drywell and torus were inerted.
04/02/2025	Torus level indication channel check readings returned to proper indication with no actions taken by the station to correct the readings.
04/03/2025 0744	Quad Cities Unit 1 achieves 100 percent power.
04/05/2025 0230	Operating crew notes that containment air compressors are not maintaining proper header pressure. Crew commenced investigation and dispatched operators to the field.
04/05/2025 0400	Station Operations personnel in the torus area identified that valves 1-1601-84B and 1-1601-95 were closed. The valves are directed to be re-opened. The Licensee entered Technical Specification (TS) 3.6.1.7 Cond E and 3.3.3.1 Cond A.
04/05/2025 1133	An Emergency Notification System (ENS) report was made to the NRC for both trains of vacuum breakers inoperable IAW 10CFR Section: 50.72(b)(3)(v)(D) - Accident Mitigation
04/05/2025	Action Request (AR) 4853337 was generated to document that valves were found out of position. Operations personnel suspect that the 1-1601-84B valve was left closed following LLRT testing. No obvious reason for the 1-1601-95 valve being closed was postulated in the AR. No actions were taken at this time to rule out potential tampering/malicious act.
04/08/2025	AR 4864189 was generated to investigate the reason for valve 1-1601-95 being closed and out of required plant configuration.
04/15/2025	Region III Regional Administrator approved MD 8.3 “Decision Documentation for Reactive Inspection” for a Special Inspection Team (SIT).
04/15/2025	AR 4857326 was generated to document multiple Operations Department surveillances that had incorrect or insufficient documentation for steps that were not performed.
04/22/2025	AR 4859394 was generated to document applicability of TS 3.6.1.7 condition C. The original operability screening only identified Cond E as applicable.
04/23/2025	AR 4859588 was generated to document single point vulnerability regarding TS 3.6.1.7.
05/05/2025	AR 4863185 was generated to document that the LCO tracking for the vacuum breakers was not performed as required by QCAP 0230-19 “Equipment Operability” step B.2.This procedure requires technical specification equipment is to be tracked at all times whether or not the equipment is required to be operable in the existing mode. This requirement is a commitment made following LER 2-97-008.

Assessment	93812

Charter Item 2 - Evaluate the licensee's progress toward understanding the event and determining causal factors, extent of condition and development of corrective actions. Through a risk-informed approach, independently verify the adequacy of the licensee's extent of condition efforts.

The inspectors interviewed licensee personnel, reviewed the root cause process, charter, and action tracking items. The inspectors did not identify any issues with the root cause process, staffing, or support by licensee management. Human performance, plant operations, and problem identification processes were found to be generally adequate, with occasional redundant but not identical processes for the preparation, planning, and tracking of configuration control during the execution of maintenance and testing. The duplicate processes on occasion resulted in incongruent understanding of process definitions and inconsistent implementation of applicable processes. Most procedure and implementation inadequacies were of minor significance, with noted exceptions documented in the finding narrative. The licensee's extent of condition was independently verified to be adequate by the inspectors through the risk informed review of maintenance records and restoration lineups.

Assessment	93812

Charter Item 3 - Evaluate the adequacy of the licensee's use of procedures for performing Local Leak Rate Tests (LLRTs), including sequencing of tests, who is allowed to "N/A" steps in the procedure, and whether the completed test procedures are reviewed by the control room unit supervisor.

Generally, the LLRTs were found to have been performed in accordance with the procedures and were scheduled appropriately to ensure completion at appropriate times. The team identified challenges and non-compliances with the processes and procedures.

The team identified a performance deficiency related to the "N/A"ing of steps within LLRT procedure QCOS 0100-49, Step H.4. The senior reactor operator (SRO) in charge of the performance of the procedure determined that restoration of plant equipment, in this case, opening of the valve, was not needed, and directed the operators to leave them as is (closed). This was performed without meeting the requirements of OP-AA-101-111-1001, "Operations Standards and Expectations," Step 3.14.1, which requires a second SRO to review prior to "N/A"ing steps. See the Non-Cited Violation (NCV) section of this inspection report for full details.

The term "verification" is used within these procedures but is an ambiguous term that is not specifically defined within the licensee's processes. In addition, the term may change depending on where it is located in the procedure or what equipment is being verified. This may lead to confusion as the performers of the procedure are sometimes left to decide in the field. The team understood the licensee's expectation that this should be addressed during the pre-job brief but found that is not always the case.

Assessment	93812

Charter Item 4 - Perform a risk-informed evaluation of the licensee's use of work control procedures for tracking equipment left in an abnormal position, including verifying whether all required components are restored prior to performing mode changes. Also, verify the required actions if an LLRT is concluded with equipment left in an abnormal configuration.

Licensee procedure OP-AA-108-106, “Equipment Return to Service,” Revision 8, was established with the purpose of establishing controls to assure the correct performance of activities related to the return to service of all plant equipment. Step 4.3 of OP-AA-108-106 directs the site to utilize another approved equipment status control mechanism to document equipment status if equipment will not be restored to the equipment line-up/restoration position or original condition. In addition, Step 4.3 of OP-AA-108-106 directs the licensee staff to OP-AA-108-101, “Control of Equipment and System Status,” to be used to document abnormal equipment configuration and immediately applied following equipment restoration. In addition to the aforementioned procedures, Step 4.7.1.3 of procedure HU-AA-104-101, “Procedure Use and Adherence,” directs the licensee staff, if a procedure is partially performed, to ensure the component/system is returned to a condition ready to perform the next evolution or returned to a condition normal/expected for plant conditions at that time.

In addition to the previously mentioned procedures, which provided methods to track and control plant equipment configuration, QCGP 1-1, “Normal Unit 1 Startup," directed the site to ensure all applicable surveillances D are current or within the 25 percent grace period for Mode 3 or Mode 4 in order to transition to Mode 2. These surveillances, listed in Attachment D, satisfy the surveillance requirements of TSs applicable in Mode 2. Furthermore, the system coordination team SROs sign off prerequisite steps in QCGP 1-1 verifying that TS systems are operable prior to mode change. These actions, along with the expectation that licensee staff utilized the other methods to track abnormal configuration or position, provided opportunities for the site to verify positions were restored prior to performing mode changes.

The NRC did not identify any issues with the site’s procedures and expectations, as established, for tracking equipment left in an abnormal position or configuration. Each procedure step mentioned above clearly outline and defines the requirements and methods for equipment in abnormal positions and configurations. However, the team identified an NCV of Green significance with the site's inadequate application of this procedure, which is documented in this inspection report.

Assessment	93812

Charter Item 5 - Evaluate the licensee’s work control processes and procedures for senior licensed operators assigned coordination roles during the outage. Verify the acceptability of their level of responsibility.

The licensee established procedure OP-AA-101-111, “Roles and Responsibilities of On-Shift Personnel,” to define the major responsibilities and roles of on-shift positions in the operations department. In addition, OP-AA-117-1001, ’’Operations Refueling Outage Readiness and Execution,’’ was established to aid the Operations Department in the preparation and execution of a refueling outage. These two procedures outline the responsibilities for different roles within the operations department.

The team noted during interviews and review that while the level of responsibility was established for the senior licensed operator roles during an outage, there was some lack of clarity with the differences for the unit supervisor role responsibility during at-power operations and refueling outage. For the event in question, an SRO in the field and assigned to the local leak rate test team provided signatures and decision-making for items noted as the responsibility of the Unit Supervisor. OP-AA-101-111, Section 4.2 established the unit supervisor as being responsible for authorizing testing, surveillances, outages and maintenance on all equipment and system affecting plant safety or place the plant in a

degraded mode as well as ensuring equipment is properly restored following completion of these activities. OP-AA-117-1001, Section 4.5.3 outlined the responsibilities of the outage unit supervisor to include ensuring the preparation and proper execution of shift activities. System coordination teams (SCTs), shift management holding delegated authority to authorize work outside of the main control room, are outlined and established in procedures OP-AA-101-111 and OP-AA-117-1001. These procedures and management model allowed the site to delegate authority to SROs not in the main control room during an outage. While it is allowed per site procedures, the differences are not clearly noted when applied during outage procedure completion, as compared to operating procedural completion.

While the team noted some challenges with clarity on responsibilities for specific roles, the level of responsibility for senior licensed operators was determined to be acceptable.

Assessment	93812

Charter Item 6 - Review whether the design of the reactor building to suppression chamber vacuum breakers meets the single-failure-proof criteria, given that closure of one valve caused a complete loss of safety function. If a design deficiency is suspected, evaluate whether the backfit criteria applies. If any potential generic issues are identified, promptly communicate those concerns to regional management.

The inspectors reviewed the system design and did not identify any design deficiencies necessitating additional research or backfit efforts. No potential generic issues were identified by the inspection team.

Assessment	93812

Charter Item 7 - Continually evaluate the complexity and significance of the circumstances to determine whether they warrant escalation of the inspection to an augmented inspection team.

The inspectors evaluated the complexity and the significance of the circumstances that led the special inspection and did not identify any criteria that would have warranted the escalation of the inspection to an augmented inspection team.

Failure to Restore Safety-Related Equipment After Testing			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000254/2025050-01 Open/Closed	[H.14] - Conservative Bias	93812

A self-revealed finding of very low safety significance (Green) and associated Non-Cited Violation (NCV) of Technical Specification (TS) 5.4.1, “Procedures,’’ was identified when the licensee failed to implement procedures associated with local leak rate testing. Specifically, during a refueling outage, a licensed senior reactor operator (SRO) gave permission to leave valves in an abnormal configuration. As a result, the reactor building-to-suppression pool vacuum breakers remained unable to perform their automatic safety-related function and placed Unit 1 in a condition prohibited by TS 3.6.1.7, “Reactor Building-to-Suppression Chamber Vacuum Breakers,’’ and Limiting Condition for Operations 3.0.4, operational MODE limitations.

Description:

On March 28, 2025, the licensee signed procedure QCOS 0100-49, “Drywell/Torus Purge Supply Local Leak Rate Test,’’ Revision 5, as completed. However, Step H.4, which restores the system by verifying valves are restored open, was not performed because the SRO supervising the test directed the test performers to leave the valves closed. This resulted in the failure to comply with multiple administrative procedures.

- HU-AA-104-101, “Procedure Use and Adherence,’’ Revision 9, Step 3.1.2, for procedure user responsibilities, states ‘’**FOLLOW** the procedure exactly as written.’’

- OP-AA-101-111-1001, “Operations Standards and Expectations,’’ Revision 37, Step 3.14.1 which states, “When performing procedures, any knowledge based decision executed by Operations in a non-transient condition SHALL be peer reviewed by a second SRO or other qualified supervisor. This typically applies, but is not limited to, procedure or work order steps that state 'as directed' or 'per the Unit Supervisor'.’’ In this case, the SRO did not get a second SRO review prior to making an “in-field” decision.

- OP-AA-108-106, “Equipment Return to Service,” Revision 8, Step 4.3 states, “If equipment will not be restored to the Equipment Line-up/Restoration position or the original condition, then another approved equipment status control mechanism shall be used to document equipment status (i.e., Equipment Status Tag, administrative clearance/tagout). OP-AA-108-101, 'Control of Equipment and System Status', shall be used to document abnormal equipment configuration and shall be immediately applied following equipment restoration.” In this case, the components were left in an abnormal configuration and was not entered into another approved tracking mechanism.

- In addition, QCAP 0230-19, “Equipment Operability,” Revision 20, Step B.2 states “The operability status of Technical Specification required equipment is to be tracked at all times whether or not the equipment is required to be operable in the existing Mode.” In addition, OP-AA-108-014, “Technical Specification Compliance,” Revision 7, Step 4.6 states, “A second SRO SHALL **VALIDATE** operability reviews for the following: 1. Technical Specification related SSC equipment.” In this case, the licensee did not track the status of the reactor building-to-suppression pool vacuum breakers while they were out of service during procedure QCOS 0100-049 because a second SRO did not review the completed procedure. It was reviewed by the supervisor that performed the procedure.

On April 5, 2025, the licensee identified unusual indications with the system designed to maintain differential pressure between the suppression pool and the drywell. The compressor that normally cycles intermittently was running continuously while the air receiver that is supplied by this compressor was noted to having lowering pressure despite the compressor running.

Corrective Actions: The licensee declared the vacuum breakers inoperable as required by TSs and immediately opened the isolation valve, returning them to service. In addition, they performed a root cause evaluation to identify why this occurred and created corrective actions to address the identified issues.

Corrective Action References: AR 4853337 and AR 4867897

Performance Assessment:

Performance Deficiency: The licensee's failure to implement procedure QCOS-0100-049 in accordance with OP-AA-101-111-1001, OP-AA-108-106, and QCAP 0230-19 was contrary to TS 5.4.1 and was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Configuration Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the reactor building-to-suppression pool vacuum breakers were left isolated, rendering them inoperable and non-functional.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors determined that a detailed risk evaluation was required, because they answered "yes" to Exhibit 2, "Mitigating Systems Screening Questions," Section A, "Mitigating SSCs and PRA Functionality (except Reactivity Control Systems), question 3. Specifically, both trains of the reactor building-to-suppression chamber vacuum breakers could not perform its PRA function for greater than the TS allowed outage time.

In addition, the inspectors assessed the significance of the finding using IMC 0609 Appendix H, "Containment Integrity Significance Determination Process."

A senior reactor analyst (SRA) performed a detailed risk evaluation which characterized the issue as having very-low safety significance (Green). The analyst used SAPHIRE version 8.2.12 and the Quad Cities SPAR model version 8.82 to assess the significance of the finding for internal events. Results from the licensee's submitted probabilistic risk assessment model were also reviewed. Additionally, the licensee performed a thermal-hydraulic analysis using the MAAP software code to evaluate the impact of the failed vacuum breakers. The following assumptions and factors were considered in the quantification:

- Since the torus to reactor building vacuum breakers are not modeled in Saphire, a basic event representing their failure was used in the fault tree for Vapor Suppression, which is used in Loss of Coolant Accident (LOCA) events. The failure of both trains of these vacuum breakers was assumed to fail Vapor Suppression during a LOCA.
- Based on the licensee's thermal-hydraulic analysis, the failure of these vacuum breakers would only threaten containment / torus integrity within the PRA mission time of 24 hours under the following circumstances:
    - A large break LOCA occurs.
    - The containment is not inerted with nitrogen; and
    - Containment sprays for the drywell and torus are placed in service and remain in service indefinitely. This conservatively assumes that: (1) operators fail to terminate containment sprays as directed by emergency operating procedures;

and (2) an automatic containment spray isolation at a containment pressure of 1 psig does not occur.

- Based on the above, the exposure time was assumed to start when Quad Cities Unit 1 entered Mode 2 on 3/31/2025 at 10:52 and end when the torus and drywell were inerted with nitrogen (in Mode 1) on 4/2/2025 at 21:25. This exposure time was rounded up to 60 hours.

The resultant change in core damage frequency (CDF) was estimated to be 8 E-8 /year for internal events. Therefore, the finding was determined to be of very-low safety significance (Green) since the total change in CDF was <1E-6/year.

Since the change in CDF for internal events was less than 1E-7 /year, the external event risk contribution was not required to be evaluated, as described in IMC 0609, Appendix A. In addition, the finding was also determined to be of very-low safety significance (Green) with respect large early release frequency (LERF) because the change in LERF was determined to be less than 1E-7 LERF/year in accordance with IMC 0609, Appendix H, “Containment Integrity SDP Process.”

Cross-Cutting Aspect: H.14 - Conservative Bias: Individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, when faced with decisions, the licensee made assumptions that other processes would ensure equipment was restored instead of taking the time to do it when directed by procedure.

Enforcement:

Violation: Technical Specification 5.4.1 “Procedures,” required, in part, that written procedures shall be established, implemented, and maintained as covered in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Section 1, “Administrative Procedures,” covered procedures for equipment control, procedure adherence, as well as procedure review and approval.

The licensee established procedure QCOS 0100-049, “Drywell/Torus Purge Supply Local Leak Rate Test,” Revision 5, to test the safety-related containment penetration boundary valves. The procedure provided instructions to isolate and restore the test boundaries. Step H.4 directed restoration and verification of several air or motor-operated valves in addition to one manual valve to the open position or to a position directed by the unit supervisor. Procedure OP-AA-101-111-1001, “Operations Standards and Expectation,” Revision 37, Step 3.14.1 requires a second SRO review to use “per unit supervisor” decisions. Additionally, if "per unit supervisor" is utilized, OP-AA-108-106, "Equipment Return to Service," Revision 8, Step 4.3 requires the equipment not restored to its required position be placed into another status control process. OP-AA-108-104, “Technical Specification Compliance,” Revision 7, Step 4.6 requires a second SRO to validate operability reviews on TS-related structures, systems, and components (SSCs).

Contrary to the above, on March 28, 2025, the licensee failed to implement written procedures covering the applicable procedures recommended in Regulatory Guide 1.33. Specifically, the licensee failed to comply with OP-AA-101-111-1001, Step 3.14.1 when the licensee utilized restoring equipment “per unit supervisor” without receiving a second SRO review and then failed to comply with OP-AA-108-106, Step 4.3 when they did not place the

abnormal equipment status into another approved-equipment status control mechanism. In addition, the licensee failed to comply with OP-AA-108-104, Step 4.6 when they did not acquire a second SRO review of the completed procedure, which affected TS-related SSC equipment.

The failure to follow the procedures and processes caused the licensee to place Unit 1 in a condition prohibited by TS 3.6.1.7, which required, in part, that the equipment be restored within 1 hour or be in Mode 3 within 12 hours and Mode 4 within 36 hours. Because the decision to not restore the equipment to its open position rendered the reactor building-to-suppression pool vacuum breakers inoperable, the plant also was not in compliance with LCO 3.0.4 when they performed plant startup and entered Modes 2 and 1.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On May 23, 2025, the inspectors presented the special inspection results to Doug Hild, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
93812	Calculations	QDC-03-16	Safety Parameter Display System SRS/SDD (Excerpts Page 22, 62-64)	6
	Corrective Action Documents	AR 4845763	PSU 1-1301-27 RCIC Check Valve Not Seating	03/16/2025
		AR 4846497	PSU U1 HPCI Trip Handle Rod	03/18/2025
		AR 4849176	OSP - PSU Q1R28 1-0203-1D MSIV Air Line Rubbing on Support	03/26/2025
		AR 4851122	1B Torus Level Indication Needs LT Flushed/Backfilled	03/31/2025
		AR 4853337	1-1601-84B Found Closed	04/05/2025
		AR 4857326	Procedure Issue Found during Extend of Condition Review	04/14/2025
		AR 4859394	Log Entry and Operability Basis Update Needed for IR 4853337	04/22/2025
		AR 4859588	Single Point Vulnerability Impacting T.S. 3.6.1.7	04/23/2025
		AR 4863185	QCAP 0230-19 Compliance Discrepancy Noted During Q1R28	05/05/2025
		AR 4864189	Research Into Manipulation of 1-1601-95	05/08/2025
	Corrective Action Documents Resulting from Inspection	AR 4865449	NRC SI: Failure to Enter TS 3.3.3.1 Cond A	05/13/2025
		AR 4866370	Incorrect Results Shared with NRC in SDP Document	05/16/2025
		AR 4867897	NRC ID: Violation of LCO 3.0.4 from IR 4853337	05/22/2025
	Drawings	4E-1438E	Schematic Diagram RHR System Relay Logic Div II Sheet 5	A0
		M-34, Sheet 1	Diagram of Pressure Suppression Piping	BJ
		M-642, Sheet 1	Diagram of Atmospheric Containment Atmosphere Dilution System	11/19/1999
	Miscellaneous		Unit 01, QOM System Line-Up Validation	05/07/2025
			LLRTs and Containment Schedule	05/02/2025
			Quad Cities Position on Reactor Building-to-Suppression Chamber Vacuum Breaker Design Basis and Single, Passive Failure Requirements	0
			NRC Q&A on SPDS D616	05/13/2025
			Root Cause Charter for AR 4853337	05/19/2025
		eSOMS Narrative Logs	Control Room Night Shift Narrative Logs	04/05/2025

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		QC-SDP-004	Significance Determination Process - Risk Evaluation of Unit 1 Reactor to Torus Vacuum Breaker	0
	Procedures		Surveillance Frequency Control Program	23
		AD-AA-101-1002	Writer's Guide for Procedures	18
		HU-AA-104-101	Procedure Use and Adherence	9
		HU-AA-1211	Pre-Job Briefings	16
		OP-AA-1	Conduct of Operations	1
		OP-AA-100	Description of the Exelon Nuclear Conduct of Operations Manual	0
		OP-AA-101-111	Roles and Responsibilities of On-Shift Personnel	15
		OP-AA-101-111-1001	Operations Standards and Expectations	37
		OP-AA-108-101	Control of Equipment System Status	20
		OP-AA-108-103	Locked Equipment Program	4
		OP-AA-108-104	Technical Specification Compliance	7
		OP-AA-108-106	Equipment Return to Service	8
		OP-AA-108-112	Plant Status and Configuration	13
		OP-AA-117-1001	Operations Refueling Outage Readiness and Execution	13
		OP-QC-117-1001	Quad Cities Clean Energy Center Operations Outage Readiness Guideline	0
		OU-AA-101	Refuel Outage Management	33
		PI-AA-120	Issue Identification and Screening Process	13
		PI-AA-125-1001	Root Cause Analysis Manual	8
		PI-AA-125-1003	Corrective Action Program Evaluation Manual	8
		QCAP 0230-19	Equipment Operability	20
		QCGP 1-1	Completed Copy of Normal Unit 1 Startup	04/03/2025
		QCOP 1600-20	Nitrogen Inerting of Primary Containment Using the Vaporizers and Reactor Building Ventilation System	36
		QCOS 0020-02	Safety System Monthly Manual Valve Position Verification	23
		QCOS 0100-49	Drywell/Torus Purge Supply Local Leak Rate Test	5
		QOM 1-1600-01	U1 Pressure Suppression Valve Checklist	13
		WC-AA-111	Surveillance Program Requirements	8

93812	Work Orders	WO 4689995	IM Perform Flowscan AOV 1-1601-20A	03/19/2025
		WO 4937652-01	OP Perform DW/Torus Purge Supply LLRT QCOS 0100-49	03/21/2021
		WO 5141221-01	OP Perform DW/Torus Purge Supply LLRT QCOS 0100-49	04/10/2023
		WO 5255124-01	OP DW/Torus Purge LLRT QCOS 0100-49	03/26/2024
		WO 5355460-01	DW / TORUS PURGE SUPPLY (IST) (LLRT)	03/16/2025
		WO 5377278	RELIEF VALVE SAMPLE GROUP RV-0-14	03/28/2025
		WO 5400236-06	OP As Left LLRT 1-1601-21 QCOS 0100-49	03/28/2025
		WO 5632834	QCOS 1601-41 Suppression Chamber Vacuum Breaker Position Verification	03/24/2025
		WO 5637702	Operations Department Summary of Daily Surveillance	03/29/2025
		WO 5640549	Operations Department Summary of Daily Surveillance	04/05/2025
		WR 1586226	1B Torus Level Indication Needs LT Flushed/Backfilled	04/21/2025