



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

September 20, 2023

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 – SAFETY–CONSCIOUS WORK
ENVIRONMENT ISSUE OF CONCERN TEAM INSPECTION REPORT
05000254/2023011 AND 05000265/2023011

Dear David Rhoades:

On August 11, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Quad Cities Nuclear Power Station and discussed the results of this inspection with Brian Wake 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 black ink, appearing to read "Robert X. Ruiz".

Signed by Ruiz, Robert
on 09/20/23

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

Docket Nos. 05000254 and 05000265
License Nos. DPR-29 and DPR-30

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

Letter to David Rhoades from Rob Ruiz dated September 20, 2023.

SUBJECT: QUAD CITIES NUCLEAR POWER STATION – SAFETY–CONSCIOUS WORK
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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000254 and 05000265

License Numbers: DPR-29 and DPR-30

Report Numbers: 05000254/2023011 and 05000265/2023011

Enterprise Identifier: I-2023-011-0036

Licensee: Constellation Nuclear

Facility: Quad Cities Nuclear Power Station

Location: Cordova, IL

Inspection Dates: July 31, 2023 to August 11, 2023

Inspectors: B. Edwards, Health Physicist
M. Keefe-Forsyth, Safety Culture Program Mgr
J. Nadel, Senior Resident Inspector
R. Sigmon, Senior Reactor Systems Engineer

Approved By: Robert X. 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 NRC 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

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 – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

93100 - Safety-Conscious Work Environment Issue of Concern Followup

NRC inspectors and qualified safety culture assessors performed a limited assessment of the safety-conscious work environment (SCWE) using inspection procedure IP 93100, "Safety Conscious Work Environment Issue of Concern Follow-up," at the Quad Cities Nuclear Power Station, following several inspector-identified issues of concern related to SCWE observed from 2022 to present, including (but not limited to) the items below:

- The September 2022 biennial Problem Identification & Resolution inspection team documented in inspection report 2022013 a gap in usage of the corrective action program (CAP) in that some individuals did not utilize the process to identify and document issues. This gap was, in part, due to concerns expressed by station personnel during interviews that there was a lack of support/advocacy of issues once they were entered into the CAP and were outside of the initiator's immediate sphere of influence.
- Inspection reports 2022022 and 2022090 identified that workers failed to document issues in the CAP that arose during the rebuild of an electromagnetic relief valve (ERV) that, in part, resulted in the licensee failing to recognize that the valve was inoperable before putting it back into service. Subsequently, the ERV failed to stroke as required following the operating cycle and would not have performed its safety-function for the two-year period after installation.
- The May 2023 Supplemental 95001 Inspection team documented in inspection report 2023040 that, based upon interviews with licensee staff, there was evidence of a prevailing mindset which overemphasized production over the demonstration of nuclear safety culture behaviors at the station. Personnel also expressed that there was a lack of supervisors in the field setting and reinforcing high standards and appropriate behaviors.

The purpose of the 93100 inspection was to inspect the SCWE at Quad Cities and determine if indications of a chilled work environment exist; if employees were reluctant to raise safety or regulatory issues; and if employees were being discouraged from raising safety or regulatory issues. The inspection consisted primarily of reviewing licensee SCWE assessments, reviewing SCWE related issues documented in the licensee's CAP, observing plant activities, and conducting interviews with plant workers. During this inspection, the team conducted focus groups and interviews with 88 individuals from Operations, Engineering, Radiation Protection, Maintenance, and Security as well as first line supervisors. In addition, the team interviewed the

department managers for Operations, Engineering, Radiation Protection, and Maintenance, the ECP manager, and a corporate vice president, totaling approximately 12% of the station.

Safety-Conscious Work Environment Issue of Concern Followup (1 Sample)

- (1) Review of licensee Safety Conscious Work Environment under IP 93100

INSPECTION RESULTS

Observation: Review of Quad Cities Safety Conscious Work Environment	93100
<p><u>Overall assessment of SCWE</u></p> <p>Overall, the team did not identify a chilled work environment at the Quad Cities station and concluded that the licensee staff was willing to identify nuclear safety issues, did not feel discouraged from raising those issues, and did not fear retaliation when doing so. However, the team noted that there did appear to be hesitancy, in some cases, for individuals to raise issues based on a perception that those issues would not be corrected, in part, due to resource constraints, corporate business practices, and a perceived emphasis on “production over safety” by station leadership and corporate management. Specific areas of discussion are provided below.</p> <p><u>Willingness to raise safety or regulatory issues.</u></p> <p>The licensee staff interviewed by the team responded that they were willing to raise nuclear safety issues without fear of retaliation but were not always confident that anything would be done with them. This was primarily attributed to concerns with staffing, inefficient work planning, and corporate business practices.</p> <p>The inspection team heard significant concerns conveyed by licensee staff about staffing levels at the station and how the corporate mandated staffing levels were considered insufficient to handle the workload. Deferred design upgrades and maintenance over the last ten years, due to a potential for the permanent shutdown of Quad Cities at that time, was seen as compounding the workload problem. Once the decision was made to continue operating the station, these deferrals resulted in a large backlog to overcome, without augmenting current staffing. As a result, the interviewees' perception is that the site has continued to inefficiently address the workload, and low-level issues are either not corrected, worked around, or reactively addressed after they result in more significant or emergent equipment failures. For departments having sufficient staff to meet the corporate targets, many of those staff are new hires, meaning that additional resources are needed to develop them until they can independently contribute. To site staff, station management was not seen as effectively addressing these staffing needs or even acknowledging their role in the issue.</p> <p>The team noted a potential concern with the work planning and coordination process. Several individuals made comments about time spent preparing for work that was canceled at the last minute, cancelations that were perceived to originate from the corporate office. Other comments referred to anticipated work that was canceled because understaffed work groups could not support the work, or because those with the appropriate qualifications were not on shift. In follow-up interviews, the team heard from individuals who perceived a work control process that did not solicit Operations Department input on what plant conditions and technical specifications could support until late in the process, at which point re-arranging work plans that could accommodate staffing, work hour requirements, training, and necessary</p>	

qualifications challenged the plant's ability to effectively leverage the staff available. The team noted that when this occurs, station work becomes more of an ad hoc process of trying to figure out what can be done with the people available. Over time this may be a significant contributor to repetitive issue reports (IRs) and long-term deficiencies, and could be exacerbating challenges with staffing, training, and work hour compliance.

Throughout the inspection, the team noted that there was a perception amongst the site staff that the station was no longer proactively addressing issues and was instead making reactive decisions with little to no communication to the first line supervisors or the staff about why these decisions were being made. There was an overwhelming sentiment that decisions were being driven by corporate management and that station management needed corporate "permission" to fix equipment or otherwise act. Station management was perceived as not having the authority to make decisions affecting the site and instead, relied on corporate management who spent little to no time onsite, and therefore, may be unfamiliar with the issues. The inspection team noted that this perception of corporate influence on everyday decisions affecting safe operations is having a negative effect on the station's safety culture.

The team also noted that "production versus safety" was a pervasive theme that came up during interactions with the staff at the station. Many interviewees felt that both corporate and station management were more focused on making money than plant health. The team noted that Senior Leadership Team materials present in the conference rooms stated, "We focus on the business first, the plant second, and our department third" additionally, site priority marketing posters throughout the plant listed "Value Safety" as the fourth item. The team noted that this type of messaging may signal that the priorities of site leadership are not in alignment with nuclear safety. Other examples given to the team included senior leadership's emphasis on shorter outage lengths while equipment with long-standing deficiency tags remains unworked, and no apparent comprehensive plan to address control room deficiency tags. This issue was also noted by inspectors in inspection report 2023040 during review of the White ERV violation.

Many of the staff interviewed felt that decision-making was often based on whether an action can be made allowable rather than determining if it's truly the prudent course for plant safety. This aligns with broader team observations about a lack of conservative bias in decision making. Several examples were shared with the team where procedures were changed, or compensatory measures were added, to ensure that the current condition of degraded equipment could be dealt with procedurally instead of fixing the issue. One example included rod bottom lights that that would go out for several rods if the control rods over-travelled during insertion, necessitating a procedural workaround during a scram to verify the reactor is shutdown. Another example, was a leaking valve in the rad waste processing system that was isolated to control leakage, requiring a more labor-intensive operation for equipment operators when the system is needed. While this approach works to maintain compliance, the team noted that every instance adds additional burden to the operators, strains staffing resources, and increases the chance of an error or additional equipment failure which has the potential to complicate event response.

Encouragement of raising safety or regulatory issues

The team determined during interviews that there was, at times, some reluctance to raise issues based on how issues were processed and station management's reaction to the issues being raised. Specifically, the team heard that senior management often places the blame for issues at the staff level instead of taking ownership for their role in the

problem. This has led to a perception that senior management was more concerned with deflecting blame than properly addressing the issues.

For example, issues that may have an adverse impact on nuclear safety culture are typically assigned a code of "OR7" to allow for better identification and tracking in the CAP and to ensure that the initiator receives management feedback. However, many staff did not feel that the criteria for assigning the OR7 code were clear and felt that this code was instead used to identify employees who were potentially "disgruntled or emotional," resulting in these issues being ignored, and possible negative attention to the initiator. Management follow-up with the initiator in accordance with the procedure was perceived as negative attention, as the initiator was often not intending the issue to be a safety culture issue. In addition, concerning the "OR7" code, the team noted that there is a prevailing assumption amongst the staff that the technical issue described in an issue report labelled with the "OR7" code will be disregarded, because follow on discussions will focus on the potential safety culture/SCWE metrics, with little to no attention given to the actual technical issue being raised.

Continuous Learning

Regarding continuous learning, which is a trait of a healthy nuclear safety culture, the team heard a common concern expressed across work groups with the quality and quantity of training. More experienced staff felt that there was a decline in the quality of training, while more recent hires felt that their training lacked "depth." Many groups felt they had insufficient time to meet requalification and continuing training requirements given the constraints in time and resources. Multiple individuals also noted that the individuals having the authority to sign qualification cards were not always those having the relevant knowledge and skills. Overall, the team noted that individuals appeared eager to acquire deeper knowledge and skills related to their jobs but were frustrated by the resource constraints. The team also noted that newer hires were particularly frustrated with what they perceived as inadequate preparation. Most interviewees stated that better alignment was needed between the training received (i.e., classroom and on-the-job) and the jobs they will be performing.

The licensee captured the team's observations in the CAP as IR 04701146.

No violations or findings were identified during this inspection.

EXIT MEETINGS AND DEBRIEFS

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

- On August 11, 2023, the inspectors presented the NRC inspection results to Brian Wake and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
93100	Procedures	HU-AA-102		9
		PI-AA-1012	Safety Culture Monitoring	4
		PI-AA-120	Issue Identification and Screening Process	13
		QCOS 6600-41	Unit 1 Emergency Diesel Generator Load Test	63
	Self-Assessments	4439785-12	Biennial Safety Culture Self-Assessment	09/29/2021
		AP-2023-1542	Quad Cities Safety Culture Improvement Plan	06/20/2023
		DD-2023-12	Quad Cities Operations Deep Dive	06/23/2023
	Fleet Assessment T-6 Assessment Report		02/03/2023	