



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

July 11, 2022

Mr. 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 – TRIENNIAL INSPECTION OF  
EVALUATION OF CHANGES, TESTS AND EXPERIMENTS BASELINE  
INSPECTION REPORT 05000254/2022012 AND 05000265/2022012

Dear Mr. Rhoades:

On May 27, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Quad Cities Nuclear Power Station and discussed the results of this inspection with Drew Griffiths and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in dark ink, appearing to read "Richard A. Skokowski".

Signed by Skokowski, Richard  
on 07/11/22

Richard A. Skokowski, Chief  
Engineering Branch 3  
Division of 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 P. Rhoades from Richard A. Skokowski dated July 11, 2022.

SUBJECT: QUAD CITIES NUCLEAR POWER STATION – TRIENNIAL INSPECTION OF  
EVALUATION OF CHANGES, TESTS AND EXPERIMENTS BASELINE  
INSPECTION REPORT 05000254/2022012 AND 05000265/2022012

DISTRIBUTION:

Jessie Quichocho  
Robert Orlikowski  
RidsNrrDorLpl3  
RidsNrrPMQuadCities Resource  
RidsNrrDrolrib Resource  
John Giessner  
Mohammed Shuaibi  
Shelbie Lewman  
Allan Barker  
DRPIII  
DRSIII

ADAMS ACCESSION NUMBER: ML22189A108

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	RIII	RIII			
NAME	JBenjamin:mb	RSkokowski			
DATE	07/08/2022	07/11/2022			

OFFICIAL RECORD COPY

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

Docket Numbers: 05000254 and 05000265

License Numbers: DPR-29 and DPR-30

Report Numbers: 05000254/2022012 and 05000265/2022012

Enterprise Identifier: I-2022-012-0017

Licensee: Constellation Nuclear

Facility: Quad Cities Nuclear Power Station

Location: Cordova, IL

Inspection Dates: May 23, 2022 to May 27, 2022

Inspectors: J. Benjamin, Senior Reactor Inspector  
B. Jose, Senior Reactor Inspector  
J. Park, Reactor Inspector

Approved By: Richard A. Skokowski, Chief  
Engineering Branch 3  
Division of Reactor Safety

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a triennial inspection of evaluation of changes, tests and experiments baseline 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.

## REACTOR SAFETY

### 71111.17T - Evaluations of Changes, Tests, and Experiments

#### Sample Selection (IP Section 02.01) (23 Samples)

The inspectors reviewed the following evaluations, screenings, and/or applicability determinations for Title 10 of the *Code of Federal Regulations* 50.59 from January 2019.

- (1) QC-E-2018-001, Revision 2 – EC 404570 and 404571, ERVR - Off Gas Isolation Loss of Power/Air Vulnerability
- (2) QC-E-2020-001 Revision 1 – EC 632028- MO 2-0220-2 Setup with Lower Closing Thrust at Torque Switch
- (3) QC-E-2020-003, Revision 0 – Document Change Request (DCR) 632901 - Revise Maintenance Specification CC-QC-409 for Safety-Related Entelliguard Trip Units
- (4) QC-E-2021-002, Revision 0 – EC 629264 and 629265 - Nuclear Fuels Transition to GNF3 at Quad Cities
- (5) QC-E-2017-002, Revision 0 – Updated Final Safety Analysis Report (UFSAR) Eliminated the Need for On-Site Rainbow Pumps
- (6) QC-S-2021-0021, Revision 0 – Nuclear Fuels Transition to GNF3 at Quad Cities (Dose Calculations Only)
- (7) QC-S-2021-0013, Revision 0 – Permanently Remove Unit 1 Main Turbine Bearing Number 8 Metal Temperature Indication
- (8) QC-S-2021-0030, Revision 0 – Setpoint Change 2B Reactor Building Closed Cooling Water (RBCCW) Pump
- (9) QC-S-2020-0002, Revision 0 – Unit 2 Install 5 Isolation Valves in Safety-Related Service Water Piping on Each Emergency Core Cooling System (ECCS) Room Cooler Supply Piping
- (10) QC-S-2019-0010, Revision 0 – Injection of Standby Liquid Control
- (11) QC-S-2019-0006, Revision 0 – Change Gearing in Motor Operated Valves (MOVs) 2-0220-1 and 2-0220-2 to Increase Margin
- (12) QC-S-2019-0005, Revision 0 – Install Close Torque Switch Bypass and Change Gearing to Improve Margin in MOV-2-1001-26A
- (13) QC-S-2019-0016, Revision 0 – Evaluation of Engineering Change 627158 / Procedure Revision of QCOP 0250-09 Making MOVs1(2)-0220-2 Throttleable
- (14) QC-S-2019-0021, Revision 0 – Quad Cities Standby Gas Treatment (SBGT) System Drawdown Analysis and Increased Main Steam Isolation Valve (MSIV) Leakage Impact

- (15) QC-S-2019-0045, Revision 0 – Updated Final Safety Analysis Report (UFSAR) Update to Better Align with Spent Fuel Pool (SFP) Analysis for Nucleate Boiling
- (16) QC-S-2020-0026, Revision 0 – Wetwell Pressure Profile and Residual Heat Removal System (RHR) / Core Spray (CS) Net Positive Suction Head (NSPH) at 3% Containment
- (17) QC-S-2020-0056, Revision 0 – RBCCW Temperature Control Valve Internal Retrofit
- (18) QC-S-2022-0004, Revision 0 – Install Switchable Jumper to Bypass 2-2002-97 Level Transmitter
- (19) QC-S-2018-0034, Revision 0 – Off Gas Isolation Loss of Power / Air Vulnerability
- (20) QC-S-2019-0004, Revision 0 – Digital Electro Hydraulic Control (DEHC), Main Stop Valve (MSV) Linear Voltage Differential Transducers (LVDT) Alarm Bypass
- (21) QC-S-2020-0009, Revision 0 – Implementation of New Quad Cities Units 1 and 2 ATRIUM 10 XM Loss of Coolant Accident (LOCA) Break Spectrum Analysis with Increased Automatic Depressurization System (ADS) Flow
- (22) QC-S-2022-0008, Revision 0 – Cut and Cap the Half Inch Reactor Head Vent Line
- (23) QC-E-2020-002, Revision 0 – Power Recovery Via BELSIM Data Validation and Reconciliation Methodology

## **INSPECTION RESULTS**

No findings were identified.

## **EXIT MEETINGS AND DEBRIEFS**

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

- On May 27, 2022, the inspectors presented the triennial inspection of evaluation of changes, tests and experiments baseline inspection results to Drew Griffiths, Plant Manager and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.17T	Calculations	GE-NE-A22-00103-049-02	Task TO603: Fuel Pool Cooling and CleanUp System (Quad Cities 1 & 2)	1A
		GE-NE-A22-00103-08-01	Task T0400: Containment System Response Dresden and Quad Cities Extended Power Uprate (EPU)	1A
		QDC-0000-N-1022	Dose and Dose Rate Scaling Factors to Evaluate Impact of EPU on Radiological Equipment Qualification and Vital Access	1A
		QDC-0000-N-2342	Quad Cities Units 1 and 2 Technical Support Center (TSC) Post-Loss of Coolant Accident (LOCA) Alternate Source Term (AST) Analysis	0 and 1
		QDC-1000-M-1019	Quad Cities Extended Power Uprate Evaluation of Residual Heat Removal (RHR) / Core Spray (CS) Net Positive Suction Head (NPSH) Analysis: Post-LOCA for Short and Long Term Events	1A
		TSC-004	30-Day Post - LOCA Doses in TSC Building	1
	Corrective Action Documents Resulting from Inspection	AR 04503410	NRC 50.59 Inspection Identified Completeness Issues with 50.59 Evaluation	06/02/2022
	Engineering Changes	EC 627158	Evaluation of Procedure Changes to QCOP 0250-09 Making Motor Operated Valves (MOVs) 1(2)-0220-2 Throttleable	0
		EC 630848	Wetwell Pressure Profile & RHR / CS NPSH at 3% Containment Leakage	0
	Engineering Evaluations	QC-E-2017-002	50.59 Evaluation for UFSAR Change that Eliminated the Rainbow Pump from Onsite to a Leasing Facility to Respond to a Lock and Dam Failure Down Stream of Quad Cities Plant	0
		QC-E-2018-001	50.59 Evaluation for Engineering Change (EC) 404570 and 404571, Off Gas Isolation Loss of Power/Air Vulnerability	2
		QC-E-2020-001	50.59 Evaluation for EC 632028, MO (1)2-0220-2 Setup with Lower Closing Thrust at Torque Switch Trip than that Required by the Sizing Calculation	1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		QC-E-2020-002	50.59 Evaluation for EC 632119 and 632145 – Power Recovery via BESLIM Data Reconciliation and Validation (DVR) Method	0
		QC-E-2020-003	50.59 Evaluation to Revise Procedure CC-QC-409 for Use of EntelliGuard Trip Units in Safety-Related Applications	0
		QC-E-2021-002	50.59 Evaluation for ECs 629264 and 629265, Nuclear Fuels Transition to GNF3 at Quad Cities (Dose Calculations Only)	0
		QC-S-2018-0034	50.59 Screening for Off Gas Isolation Loss of Power/Air Vulnerability	0
		QC-S-2019-0004	50.59 Screening to Install/Remove Forced Signal for Main Stop Valves' Linear Voltage Differential Transducer Nuisance Alarms	0
		QC-S-2019-0005	50.59 Screening to Install Close Torque Switch Bypass and Change Gearing to Improve Margin in MOV 2-1001-26A	0
		QC-S-2019-0006	50.59 Screening to Change Gearing in MOVs 2-0220-1 and 2-0220-2 to Increase Margin	0
		QC-S-2019-0010	50.59 Screening for Standby Liquid Control Two Pump Operation	13
		QC-S-2019-0016	50.59 Screening for EC 627158 / Procedure Revision of QCOP 0250-09 Making MOVs1(2)-0220-2 Throttleable	0
		QC-S-2019-0021	50.59 Screening for EC 626084, Quad Cities Standby Gas Treatment System Drawdown Analysis and Increased Main Steam Isolation Valve (MSIV) Leakage Impact	0
		QC-S-2019-0045	50.59 Screening for EC 628372, Updated Final Safety Analysis Report (UFSAR) Update to Better Align with Spent Fuel Pool (SFP) Analysis for Nucleate Boiling	0
		QC-S-2020-0002	50.59 Screening to Install 5 Isolation Valves in Safety - Related Service Water Piping on Each Emergency Core Cooling System (ECCS) Room Cooler Supply Piping	1
		QC-S-2020-0009	50.59 Screening for Quad Cities Units 1 and 2 ATRIUM 10XM Loss of Coolant Accident (LOCA) Break Spectrum Analysis with Increased Automatic Depressurization System (ADS) Flow	0
		QC-S-2020-0026	50.59 Screening for EC 630848, Wetwell Pressure Profile &	0



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			RHR / CS NPSH at 3% Containment Leakage	
		QC-S-2020-0056	50.59 Screening for EC 627226, Reactor Building Closed Cooling Water (RBCCW) Temperature Control Valve Internal Retrofit	0
		QC-S-2021-0013	50.59 Screening to Permanently Remove Unit 1 Main Turbine Bearing #8 Metal Temperature Indication	0
		QC-S-2021-0021	50.59 Screening for Nuclear Fuels Transition to GNF3 at Quad Cities (Dose Calculation Only)	0
		QC-S-2021-0030	50.59 Screening to Adjust Setpoint for Bus 29 Cubicle 5C, 2B RBCCW Pump Motor Feed Breaker	0
		QC-S-2022-0004	50.59 Screening for EC 636096 to Install Switchable Jumper to Bypass 2-2002-97 Level Transmitter	0
		QC-S-2022-008	50.59 Screening to Temporarily Cut and Cap the Half Inch Reactor Head Vent Line	0
	Procedures	LS-AA-104	Exelon 50.59 Review Process	12
		LS-AA-104-1000	Exelon 50.59 Resource Manual	14
		QCOP 0250-09	Controlling the Reactor Cavity Level Using the Main Steam Lines	1