Exelon Generation®

SVP-20-066 10 CFR 50.73

September 17, 2020

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Unit 2
Renewed Facility Operating License No. DPR-30
NRC Docket No. 50-265

Subject: Licensee Event Report 265/2020-003-00 "Oscillation Power Range Monitors (OPRMs) Count Setpoint Discrepancy Due to Inadequate Instructions"

Enclosed is Licensee Event Report 265/2020-003-00 "Oscillation Power Range Monitors (OPRMs) Count Setpoint Discrepancy Due to Inadequate Instructions," for Quad Cities Nuclear Power Station, Unit 2.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(v)(D), an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident; 10 CFR 50.73(a)(2)(i)(B), operation or condition which prohibited by the plant's Technical Specifications; and 10 CFR 50.73(a)(2)(vii), common cause inoperability of independent trains or channels.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this report, please contact Sherrie Grant at (309) 227-2800.

Respectfully,

Kenneth S. Ohr
Site Vice President
Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

NRC FORM 366 (08-2020) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB: NO. 3150-0104 | EXPIRES: 08/31/2023

LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)
(See NUREG-1022, R.3 for instruction and guidance for completing this form
http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. Facility Name	2. Docket Number	3. Page
Quad Cities Nuclear Power Station, Unit 2	05000 -265	1 OF 4

4. Title

Oscillation Power Range Monitors (OPRMs) Count Setpoint Discrepancy Due to Inadequate Instructions

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
07	22	2020	2020	- 003 -	00	09	15	2020		05000
									Facility Name	Docket Number
										05000

9. Operating Mode	10. Power Level
1	100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☒ 50.73(a)(2)(i)(B)	☒ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☒ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Rachel Luebbe – Regulatory Assurance	309-227-2813

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS		Cause	System	Component	Manufacturer	Reportable to IRIS
D	IG	MON	A576	Y						

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☒ No	☐ Yes (If yes, complete 15. Expected Submission Date)				

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On July 22, 2020 during the performance of an Oscillation Power Range Monitor (OPRM) time test it was identified that the as-found OPRM maximum confirmation count setpoint on the Unit 2 OPRMs did not match the values in the Quad Cities Unit 2 Core Operating Limits Report (COLR). All Unit 2 OPRMS were declared inoperable at 1030 on July 22, 2020. Operations entered Technical Specification (TS) 3.3.1.3 Condition A for OPRMs 1-8 and Condition B for loss of trip capability. The setpoint discrepancy was corrected and all the Unit 2 OPRMs were declared operable on July 23, 2020 at 1210. TS 3.3.1.3 Condition A and Condition B were exited at that time.

The cause of the incorrect OPRM count setpoint was due to insufficient work package guidance and a lack of verification to ensure that the work instructions contained the proper setpoints.

This is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), operation or condition prohibited by Technical Specifications, 10 CFR 50.73(a)(2)(v)(D), event or condition that could have prevented fulfillment of a safety function, and 10 CFR 50.73(a)(2)(vii), common cause inoperability of independent trains or channels. No 10 CFR 50.72 report was made for this event.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Quad Cities Nuclear Power Station Unit 2	05000- 265	2020	- 003	- 00

NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 2957 Megawatts Thermal Rated Core Power

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION

Oscillation Power Range Monitors (OPRMs) Count Setpoint Discrepancy Due to Inadequate Instructions

A. CONDITION PRIOR TO EVENT

Unit: 2 Event Date: July 22, 2020 Event Time: 1030 hours CDT
Reactor Mode: 1 Mode Name: Power Operation Power Level: 100%

There were no other structures, systems or components (SSC) inoperable during this event time period that could have contributed to this event.

B. DESCRIPTION OF EVENT

During the Q2R25 refueling outage (April 2020), all Unit 2 Oscillation Power Range Monitor (OPRM) Trip Amplitude Setpoints were updated per Quad Cities Unit 2 Core Operating Limits Report (COLR) Rev 13. The work order (WO) written to update the OPRM setpoints only directed an update to the amplitude setpoint. There were no instructions to update the confirmation count setpoint. During the refueling outage the Quad Cities Unit 2 COLR was emergently changed to Rev 14, however this revision did not change any OPRM setpoint values.

On July 22,2020 at 1030 CDT, while performing an OPRM response time test, it was identified that the as-found OPRM maximum confirmation count setpoint on the Unit 2 OPRMs did not match the value in the Quad Cities Unit 2 COLR. The setpoint was found to be set at 16 counts to trip but per the COLR it should have been set at 15 counts. All Unit 2 OPRMs were declared inoperable. Operations entered Technical Specification (TS) 3.3.1.3 Condition A for OPRMs 1 through 8 and Condition B for loss of trip capability. The setpoint discrepancy was entered into the corrective action program and corrected under a work order (WO). All the Unit 2 OPRMs were declared operable on July 23, 2020 at 1210 CDT. TS 3.3.1.3 Condition A and Condition B were exited at that time. There were no other safety systems or components inoperable at the time of this event.

This is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B),operation or condition prohibited by Technical Specification for having incorrect confirmation count setpoint and 10 CFR 50.73(a)(2)(vii), common cause inoperability of independent trains or channels since the incorrect setpoint caused all Unit 2 OPRMs to be declared inoperable. During evaluation of the event, it was determined that 10 CFR 50.73(a)(2)(v)(D), event or condition that could have prevented fulfillment of a safety function also applies.

NARRATIVE

C. CAUSE OF EVENT

The cause of the incorrect OPRM count setpoint was due to insufficient work package guidance and a lack of verification to ensure that the work instructions contained the proper setpoints.

D. SAFETY ANALYSIS

System Design

The OPRM system consists of four (4) OPRM trip channels, each channel consisting of two OPRM modules. Each OPRM module receives input from Local Power Range Monitors (LPRMs). Each OPRM module also receives input from the Reactor Protection System (RPS) average power range monitor (APRM). Four channels of the OPRM system are required to be Operable to ensure that stability related oscillations are detected and suppressed prior to exceeding minimum critical power ratio (MCPR) safety limit. The nominal setpoints for the period based detection algorithm (PBDA) OPRM trip function are specified in the Core Operating Limits Report (COLR). The PBDA trip setpoints are the number of confirmation counts required to permit a trip signal and the peak to average amplitude required to generate a trip signal.

UFSAR Section 15.4.11.1 describes that the OPRM system provides automatic protection from a Thermal Hydraulic Instability Transient. This transient is considered an event of moderate frequency as defined in Regulatory Guide 1.70. When the OPRM is not fully functional, then the operators provide protection from this event by scramming the reactor upon recognition of an instability or upon entry into the scram region on the power to recirculation flow map.

Safety Impact

An Engineering evaluation reviewed Unit 2 Cycle 26 operating data from April 2020 to present. This review showed that the minimum Operating Limit minimum critical power ration (OLMCPR) experienced was greater than 1.60. The limiting OLMCPR for Unit 2 Cycle 26 across all events is 1.47. The evaluation concluded there was sufficient margin in the OLMCPR limit to ensure that the existing safety analysis would have supported a maximum confirmation count setpoint of 16 along with the as installed amplitude setpoint of 1.13.

This event is a Maintenance Rule Functional Failure (MRFF) but is not considered a safety system functional failure (SSFF) because of the results of the engineering evaluation showed no safety significance.

E. CORRECTIVE ACTIONS

The immediate completed action was to adjust all the U2 OPRM set points per Quad Cities Unit 2 COLR.

Follow-up actions will include revising the maintenance OPRM calibration procedure to include more detailed instructions and a verification of setpoints against the COLR.

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Quad Cities Nuclear Power Station Unit 2	05000- 265	2020	- 003	- 00

NARRATIVE

E. PREVIOUS OCCURRENCES

No similar events were identified where a common cause of inadequate instructions cause all the OPRMs or other safety system to become inoperable.

F. COMPONENT FAILURE DATA

Failed Equipment: Monitoring, In-core
Component Manufacturer: ABB COMBUSTION ENG
Component Model Number: 2001731-102
Component Part Number: N/A

This event has been reported to IRIS.