Exelon Generation®

SVP-20-042 10 CFR 50.73

June 11, 2020

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

Quad Cities Nuclear Power Station, Unit 1 and 2
Renewed Facility Operating License No. DPR-29 and DPR-30
NRC Docket No. 50-254 and 50-265

Subject: Licensee Event Report 254/2020-001-00 "Control Room Emergency Ventilation Air Conditioning System Inoperable Due to Incorrect Breaker Setting"

Enclosed is Licensee Event Report 254/2020-001-00 "Control Room Emergency Ventilation Air Conditioning System Inoperable Due to Incorrect Breaker Setting," for Quad Cities Nuclear Power Station, Unit 1.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(v)(D) which requires the reporting of any 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.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this report, please contact Sherrie Grant at (309) 227-4833.

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 (04-2020) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 04/30/2020

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104). Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

LICENSEE EVENT REPORT (LER)

(See Page 2 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 1	05000254	1 OF 4

4. Title

Control Room Emergency Ventilation Air Conditioning System Inoperable Due to Incorrect Breaker Setting

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
04	14	2020	2020	- 001	- 00	06	11	2020	Quad Cities Nuclear Power Station Unit 2	05000265
									Facility Name: n/a	Docket Number: 05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. Power Level	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
100	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☒ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ Other (Specify in Abstract below or in NRC Form 366A)	

12. Licensee Contact for this LER

Licensee Contact	Telephone 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 ICES	Cause	System	Component	Manufacturer	Reportable to ICES
X	VI	52	C770	Y	n/a				

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

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On April 14, 2020, at 1645 hours CDT, the Quad Cities Nuclear Power Station (QCNPS) Unit 1 and Unit 2 Control Room Emergency Ventilation (CREV) Air Conditioning (AC) system was declared inoperable due to a trip of the Refrigeration Condensing Unit (RCU) feed breaker. Technical Specification (TS) 3.7.5 Condition A was entered at that time. Control Room operators discovered that the indicating light for the RCU was not lit. An operator was dispatched and found that the feed breaker had tripped. At 1705 hours CDT the feed breaker was reset restoring RCU light indication in the control room. A full RCU feed breaker inspection, adjustment of the breaker trip setting, and post maintenance testing (PMT) of the breaker and system were completed on April 16, 2020 with TS 3.7.5 Condition A exited at 0453 hours.

The causes of the event were (1) failure to adequately update guidance documents in a timely manner and (2) maintenance not adequately documenting the difference between as-found and work instruction breaker setting values during the RCU feed breaker preventative maintenance (PM) in 2013.

This is being reported in accordance with 10 CFR 50.73(a)(2)(v)(D), any 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.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Quad Cities Nuclear Power Station Unit 1	05000254	2020	- 001	- 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

Control Room Emergency Ventilation Air Conditioning System Inoperable Due to Incorrect Breaker Setting

A. CONDITION PRIOR TO EVENT

Unit: 1 Event Date: April 14, 2020 Event Time: 1645 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

On April 14, 2020 at 16:45, Operations noticed that there was no indicating light for the Control Room Emergency Ventilation (CREV)[VI] Refrigeration [RFU] Condensing Unit (RCU) 0-9400-102 on the Main Control Room (MCR)[NA] Panel 912-5. This was noted during the hourly general panel walk down. An operator was dispatched and found that local indications also showed the RCU to have no power and the breaker in a tripped condition. The breaker was reset, and light indication [IL] was restored. The Station entered Technical Specification (TS) 3.7.5 Condition A for an inoperable CREV Air Conditioning (AC) system. ENS Notification #54665 was made in accordance with 10 CFR 50.72(b)(3)(v)(D). Electrical Maintenance performed a breaker [52] and cubicle inspection on April 16, 2020 and found that the breaker trip setting was set at 8.8. A review of the breaker parameters showed that the trip setting should have been set at 10. No other issues with the function of the breaker or cubicle were found.

In February 2012, after a series of short duration nuisance CREV RCU breaker trips, additional troubleshooting and an investigation was performed on this breaker. The investigation concluded that breaker instantaneous thermal trip settings needed to be increased to the maximum manual setting (10) to avoid continued nuisance trips. The trip setting of 8.8 was acceptable, but due to the high importance of the system, the trip setting of 10 was recommended for additional margin to ensure continuity of service. The breaker setting was changed to the 10 and an engineering change was initiated to update the breaker trip setting in the Passport Database. Design Engineering incorrectly assumed that the breaker preventative maintenance (PM) would be credited to recently completed breaker troubleshooting and that the next PM occurrence would be in 8 years. However, maintenance did not credit the troubleshooting work to the PM and the normal PM schedule remained with the next PM due in 18 months. The Engineering Change to update the Passport Database breaker trip setting was not completed until four days after the breaker PM work order task instructions were completed.

NARRATIVE

When the breaker PM was completed in October 2013, the breaker trip setting was found to be a 10, which did not match the work instruction value. Maintenance changed the breaker trip setting back to 8.8 to match their work Instruction value and the calculations performed per the maintenance breaker trip setting procedure. No Issue Report was generated to document the difference between the as found breaker setting and work instruction breaker setting.

Following the April 2020 breaker trip, a complete breaker and cubicle PM was performed in which the breaker thermal trip settings was correctly set at 10. The CREV RCU was successfully run and declared operable on April 16, 2020 at 0453. TS 3.7.5 Condition A was exited at that time.

Given the impact on the CREV AC system, this report is submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(v)(D), which requires the reporting of 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.

C. CAUSE OF EVENT

The causes of the event were failure to adequately update guidance documents in a timely manner and maintenance not adequately documenting the difference between as-found and work instruction breaker setting value during the RCU feed breaker PM in 2013. The engineering change to update the Passport database with the new breaker trip setting of 10 following the 2012 event was not completed until four days after the breaker PM work instructions were completed. This caused a difference during the execution of the RCU breaker PM between the as-found breaker trip settings and the settings written in the PM work instructions. This difference was not discussed with station personnel outside the maintenance organization and therefore the breaker thermal trip setting was changed back to 8.8.

D. SAFETY ANALYSIS

System Design

The purpose of the Control Room Emergency Ventilation system is to maintain the proper air environment for instrumentation and personnel in the Main Control Room. The CREV AC system is a single train safety-related system that is designed to maintain design temperature in the Control Room Envelope (CRE) under post-accident conditions. The loss of the CREV AC could impact the plant's ability to mitigate the consequences of an accident. The CREV RCU is a key component of the CREV AC system and is a Carrier reciprocating compressor with a capacity of 90 tons. The backup to the CREV system is the Train A Control Room HVAC system, which is a non-safety-related system.

Per Updated Final Safety Analysis Report (UFSAR) Section 6.4,"Habitability Systems," the Control Room Heating, Ventilation, and Air Conditioning (HVAC) systems are capable of maintaining the control room atmosphere suitable for occupancy throughout the duration of a DBA. The AFU provides filtration functions to support CREVs operation. The emergency operation of CREVs requires manual actions.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Quad Cities Nuclear Power Station Unit 1	05000254	2020	- 001	- 00

NARRATIVE

Safety Impact

The safety significance of this event was minimal. The CREV system filtration capability was not lost, and the Control Room temperature was maintained during this event. In addition, the non-safety related Train A Control Room HVAC system was available throughout this event. Although the time that the breaker was tripped was short, CREV AC could not be relied upon to fully perform its safety function during an accident. This event is considered a safety system functional failure and a maintenance rule functional failure.

E. CORRECTIVE ACTIONS

Immediate:

1. Performed a full breaker PM and return the breaker trip setting to 2012 margin setting of 10.

Follow-up:

1. Update maintenance breaker PM procedure to require writing an issue report (IR) or Engineering Change Request (ECR) should a difference be found between as-found breaker trip settings and work instruction setting value.

F. PREVIOUS OCCURRENCES

The station events database, LERs and IRIS were reviewed for similar events at Quad Cities Nuclear Power Station. This event was a CREV RCU breaker trip, which was caused by insufficient breaker setting margin.

LER (254/2012-001-00) Control Room Emergency Ventilation Air Conditioning System Inoperable, 03/23/2012. The CREV RCU was declared inoperable when the electrical feed breaker to the RCU was found in a tripped condition. This event was caused by insufficient margin in the breaker setting for the RCU feed breaker. The breaker setting was changed in 2012 as discussed in the description of this event, however in 2013 the breaker setting was returned to the acceptable but non-conservative value of 8.8.

G. COMPONENT FAILURE DATA

Failed Equipment: BREAKER, MCC; 480V S/N
Component Manufacturer: Cutler-Hammer/Eaton
Component Model Number: KD3250
Component Part Number: N/A

This event has been reported to IRIS.