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Exelon Nuclear

January 27, 2006

SVP-06-006

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

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and 30
NRC Docket Nos. 50-254 and 50-265

Subject: Licensee Event Report 254/05-006, "Failure of the Control Room Emergency Ventilation Air Conditioning Compressor Due to a Manufacturing Defect in an Electrical Relay"

Enclosed is Licensee Event Report (LER) 254/05-006, "Failure of the Control Room Emergency Ventilation Air Conditioning Compressor Due to a Manufacturing Defect in an Electrical Relay," for Quad Cities Nuclear Power Station.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 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.

Should you have any questions concerning this report, please contact Mr. W. J. Beck at (309) 227-2800.

Respectfully,

Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

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

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Quad Cities Nuclear Power Station, Unit 1	05000254	1 of 3

4. TITLE Failure of the Control Room Emergency Ventilation Air Conditioning Compressor Due to a Manufacturing Defect in an Electrical Relay

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
									Quad Cities Nuclear Power Station, Unit 2	05000 265
11	30	2005	2005	- 006 -	00	01	27	2006	FACILITY NAME: N/A	DOCKET NUMBER: 05000

9. OPERATING MODE

1

10. POWER LEVEL

100%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☒ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Wally Beck, Regulatory Assurance Manager	(309) 227-2800

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
BM	VI	RLY	C770	Y					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On November 30, 2005, at 1500 hours, the "B" Control Room Emergency Ventilation (CREV) Air Conditioning system was declared inoperable due to the failure of the air conditioning compressor. An electrical relay designed to stop the air conditioning compressor on low suction pressure, which is a normal part of the cycling of the air conditioning system in response to the Control Room thermostat, failed in the energized position. The continued operation of the compressor caused the refrigerant system to become sub-cooled. The sub-cooled refrigerant became liquefied and eventually damaged the compressor's shaft seals, allowing lubricating oil to leak out. The loss of lubricating oil damaged the rotating portions of the compressor. The compressor and relay were replaced, the CREV air conditioning system was tested, and the system was declared operable at 0242 hours on December 5, 2005.

The CREV system is a single train system. Therefore, this is being reported as a condition that could have prevented a safety function.

The electrical relay failure was caused by a manufacturing deficiency (bound armature retaining pin) specific to this relay.

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

Failure of the Control Room Emergency Ventilation Air Conditioning Compressor Due to a Manufacturing Defect in an Electrical Relay

A. CONDITION PRIOR TO EVENT

Unit: 1	Event Date: November 30, 2005	Event Time: 1500 hours
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 100%
Unit: 2	Event Date: November 30, 2005	Event Time: 1500 hours
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 100%

B. DESCRIPTION OF EVENT

On November 30, 2005, at 1500 hours, during performance of the monthly test, the "B" Control Room Emergency Ventilation (CREV) Air Conditioning system [VI] was declared inoperable due to the failure of the air conditioning compressor [CMP]. Operations entered Technical Specification (TS) 3.7.5, Condition A (30-day Allowed Outage Time) for both Unit 1 and Unit 2. Nuclear fuel movements in progress at the time were also suspended in accordance with TS 3.7.5, Condition C.

An electrical relay [RLY] designed to stop the air conditioning compressor on low suction pressure, which is a normal part of the cycling of the air conditioning system in response to Control Room thermostat, failed in the energized position. The continued operation of the compressor caused the refrigerant system to become sub-cooled. The sub-cooled refrigerant became liquefied and eventually damaged the compressor's shaft seals, allowing lubricating oil to leak out. The loss of lubricating oil damaged the rotating portions of the compressor.

The compressor and relay were replaced, the CREV air conditioning system was tested, and the system was declared operable at 0242 hours on December 5, 2005.

C. CAUSE OF EVENT

The electrical relay failure was caused by a manufacturing deficiency (bound armature retaining pin) specific to this relay. The failed electrical relay was sent to Exelon's Power Labs for failure analysis. Based on testing and evaluation, it was determined that the relay had failed to de-energize due to the relay armature-retaining pin binding on the relay housing.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. The filtration function of the CREV system remained operable, and the Control Room temperature was controlled by the normal Control Room ventilation system.

E. CORRECTIVE ACTIONS

The compressor and failed relay were replaced.

The replacement of the CREV air conditioning compressor relay with a different manufacturer or model will be reviewed.

F. PREVIOUS OCCURRENCES

A review of LERs for the last three years did not identify any failures of the CREV Air Conditioning system.

G. COMPONENT FAILURE DATA

The relay is a Cutler-Hammer model AR880 AR relay.