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LWP-96-032

April 1, 1996

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Reference: Quad Cities Nuclear Power Station
Docket Number 50-254, DPR-29, Unit One

Enclosed is Licensee Event Report (LER) 96-001, Revision 00, 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). The licensee shall report any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

The following commitments are being made by this letter:

1. Materials Engineering Group perform a root cause analysis of the failure, due date of 7/1/96.
2. Evaluate the final report for the malfunctioning relay and implement any actions deemed necessary to prevent a recurrence of this type failure, due date of 9/3/96.

If there are any questions or comments concerning this letter, please refer them to Nick Chrissotimos, Regulatory Assurance Administrator at 309-654-2241, ext. 3100.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

L. W. Pearce
Station Manager

LWP/NC/plm
Enclosure

cc: P. Piet
C. Miller
INPO Records Center
NRC Region III

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LICENSEE EVENT REPORT (LER)

Form Rev. 2.0

Facility Name (1) Quad Cities Unit One	Docket Number (2) 0 5 0 0 0 2 5 4	Page (3) 1 of 0 4
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Title (4)
LER 1-96-001 B CR HVAC SYSTEM INOPERABLE DUE TO A MALFUNCTIONING RELAY WHICH PREVENTED ISOLATION OF THE AIR HANDLING UNIT FAN

Event Date (5)			LER Number (6)			Report Date (7)			Other Facilities Involved (8)	
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)
0 3	0 3	9 6	9 6	-- 0 0 1	-- 0 0	0 4	0 1	9 6		0 5 0 0 0
0 5 0 0 0										

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)		
POWER LEVEL (10) 0	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)
	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)
	20.405(c)	50.36(c)(1)	50.36(c)(2)
	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)
	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)
	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)
	73.71(b)	73.71(c)	Other (Specify in Abstract below and in Text)

LICENSEE CONTACT FOR THIS LER (12)	
NAME Nick Chrissotimos, Regulatory Assurance, Ext. 3100	TELEPHONE NUMBER AREA CODE: 3 0 9 6 5 4 - 2 2 4 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			Expected Submission Date (15)	Month	Day	Year
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO					

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

ABSTRACT:

On 3/3/96 at 0800 hours, Unit One was in the SHUTDOWN mode at 0 percent power and Unit Two was in the RUN mode at 100 percent power. At this time, an Equipment Attendant noted that the "B" Control Room (CR) heating, ventilating, and air conditioning (HVAC) system air handling unit fan inlet and outlet dampers were open when they should be closed. At 1329 hours, Operations personnel performed an automatic start of the system in this condition and verified proper operation.

On 3/4/96 at 0430 hours, the "B" CR HVAC system was declared inoperable. While performing troubleshooting activities under NWR 960021827, the EMs identified a problem with the relay that controls operation of these dampers.

On 3/6/96, the EMs replaced the relay and forwarded the damaged relay to Engineering for evaluation.

On 3/7/96 at 0400 hours, the "B" CR HVAC system was declared operable. The malfunctioning relay was sent to the Materials Engineering Group for a root cause analysis of the failure.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		9 6	-	0 0 1	-	0 0		

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

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 Mwt rated core thermal power.

EVENT IDENTIFICATION: LER 1-96-001 B CR HVAC SYSTEM INOPERABLE DUE TO A MALFUNCTIONING RELAY WHICH PREVENTED ISOLATION OF THE AIR HANDLING UNIT FAN.

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: March 3, 1996 Event Time: 0800
 Reactor Mode: 1 Mode Name: Shutdown Power Level: 0

This report was initiated by Licensee Event Report LER254\96-001.

SHUTDOWN (1) - In this position, a reactor scram is initiated, power to the control rod drives is removed, and the reactor protection trip systems have been deenergized for 10 seconds prior to permissive for manual reset.

B. DESCRIPTION OF EVENT:

On 3/3/96 at 0800 hours, Unit One was in the SHUTDOWN mode at 0 percent power and Unit Two was in the RUN mode at 100 percent power. At this time, a Unit One Equipment Attendant (EA) noticed that the inlet and outlet isolation dampers for the "B" Control Room (CR) heating, ventilating, and air conditioning (HVAC) system air handling unit (AHU) fan were open when they should be closed. He also observed that the AHU fan was spinning backwards due to airflow from the "A" CR HVAC unit past the open dampers. The EA immediately notified the Shift Supervisor of these findings. Nuclear Work Request (NWR) 960021827 was written to investigate and repair the condition. Problem Identification Form (PIF) number 96-0763 was also written and an issue screening for the PIF was forwarded to Engineering for evaluation. At 1329 hours, Operations personnel performed an automatic start of the "B" CR HVAC system and verified proper operation. The automatic start is performed by securing the "A" CR HVAC train and verifying the "B" CR HVAC unit starts and operates properly.

On 3/4/96 at 0430 hours, the "B" CR HVAC system was declared inoperable based on the evaluation performed by engineering. The evaluation indicated that the high current caused by starting the fan with it spinning in the opposite direction could cause the circuit breaker to trip.

Electrical Maintenance (EM) personnel began troubleshooting activities under the NWR. The EMs discovered that the 1-2 contact on control relay CR1 AHB in the 1/2-9400-105 panel, which controls operation of the inlet and outlet dampers, was not functioning properly. On 3/6/96, the EMs replaced the relay and forwarded the malfunctioning relay to Engineering for root cause evaluation.

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On 3/7/96 at 0400 hours, the "B" CR HVAC system was declared operable following successful completion of operability testing.

C. APPARENT CAUSE OF EVENT:

The apparent cause of the event was high contact resistance and a faulty coil core for the relay which resulted in intermittent action. Preliminary findings from the Materials Engineering Department noted that the resistance of the contacts and the coil core were slightly higher than normal. The report showed that the relay was functional, but had the potential to act intermittently due to the high resistance and faulty coil core.

The root cause analysis is being performed to determine the cause of the high resistance and faulty coil core.

D. SAFETY ANALYSIS OF EVENT:

The safety significance of this event is considered minimal. Shortly after finding the dampers open with the AHU fan rotating in the wrong direction, Operations performed an automatic start of the system and verified that the system was capable of performing its design function. Therefore, had an accident situation developed with the system in this condition, an automatic start of the system would have occurred as designed. Once the system has started, the affected dampers are designed to be in the open position and so system operation would not have been altered.

Operation of the A train would similarly be unaffected. With the "B" train dampers failed open, some return air would be diverted from Aux electric room through the discharge from the "B" train. The reason for the supply to the Aux electric room being unaffected is the distance between "A" train supply and the "B" train supply results in adequate air flow through the room. The supply air to the control room and other zones from the A train would be unaffected since there is no similar flow path for these zones.

E. CORRECTIVE ACTIONS:

Corrective Actions Complete

Perform an automatic start of the system.

The faulty relay was replaced and the system was successfully tested.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as (XX)

Open Corrective Actions

Materials Engineering Group perform a root cause analysis of the failure. (NTS#2541809600101, due date of 7/1/96).

Evaluate the final report for the malfunctioning relay and implement any actions deemed necessary to prevent a recurrence of this type failure. (NTS#2541809600102, due date of 9/3/96).

F. PREVIOUS RESULTS:

A review of the Nuclear Plant Reliability Data System (NPRDS) did not identify any events where a CR HVAC system was made inoperable due to a relay failure. Similarly, there have been no previous events at Quad Cities station where a relay failure caused the CR HVAC system to be declared inoperable. This relay type is not used on other systems on site.

G. COMPONENT FAILURE DATA:

The component that failed was a Westinghouse industrial control relay, model AR880A, style 766A031G01.