Commonwealth Edison
Quad Cities Nuclear Power Station
22710 206 Avenue North
Cordova, Illinois 61242-9740
Telephone 309/654-2241

RLB-92-187

September 2, 1992

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) 92-017, 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.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

R. L. Bax
Station Manager

RLB/TB/plm

Enclosure

cc: J. Schrage
T. Taylor
INPO Records Center
NRC Region III

STMGR 431

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Quad Cities Unit One	0 5 0 0 0 2 5 4	1 of 0 4

Title (4) "B" Train Of Control Room Ventilation Inoperable Due To Incorrect Compressor Operating Instructions Contained In A Vendor Manual Which Caused A Filter To Become Plugged.

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 8	0 4	9 2	9 2	---	0 1 1 7	0 0	0 9	0 1	9 2	Quad Cities Unit Two	0 5 0 0 0 2 6 5
											0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
POWER LEVEL (10)	7 1 %	___ 20.402(b)	___ 20.405(c)	___ 50.73(a)(2)(iv)	___ 73.71(b)		
		___ 20.405(a)(1)(i)	___ 50.36(c)(1)	X 50.73(a)(2)(v)	___ 73.71(c)		
		___ 20.405(a)(1)(ii)	___ 50.36(c)(2)	___ 50.73(a)(2)(vii)	___ Other (Specify in Abstract below and in Text)		
		___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)			
		___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)			
		___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER AREA CODE
Mike Marms Ext. 2159	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	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	___ X NO				

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

ABSTRACT:

On August 4, 1992, Unit One and Unit Two were in the RUN mode at 71 and 98 percent of rated core thermal power, respectively. At 1129 hours, the "B" train of Control Room [NA] (CR) Heating, Ventilating, and Air Conditioning [HVAC] refrigeration condensing unit [CDU] (RCU) 1/2-9400-102 was declared inoperable. An Emergency Notification System (ENS) phone call was made at 1156 hours per 10CFR50.72(b)(2)(iii)(D).

The apparent cause of the event was incorrect vendor manual compressor operating instructions from the compressor installer which resulted in the station operating the compressor at excessive discharge pressure. The end result of this was a carbon buildup on the liquid line filter [FLT] which made the RCU inoperable.

The corrective actions taken included troubleshooting the RCU with a service technician and replacing the plugged filters. Future corrective actions will include revising the vendor manual, developing a filter preventative maintenance program, if needed, and recalibrating the discharge pressure control instrumentation to maintain the new, lower discharge pressure.

This report is being submitted to comply with 10CFR50.73(a)(2)(v).

PLANT AND SYSTEM IDENTIFICATION:

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

EVENT IDENTIFICATION: "B" Train Of Control Room Ventilation Inoperable Due To Incorrect Compressor Operating Instructions Contained In A Vendor Manual Which Caused A Filter To Become Plugged.

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: August 4, 1992 Event Time: 1129
Reactor Mode: 4 Mode Name: RUN Power Level: 71%

This report was initiated by Deviation Report D-4-01-92-075.

RUN Mode (4) - In this position the reactor system pressure is at or above 825 psig, and the reactor protection system is energized, with APRM protection and RBM interlocks in service (excluding the 15% high flux scram).

B. DESCRIPTION OF EVENT:

At 1129 hours on August 4, 1992, Unit One and Unit Two were in the RUN mode at 71 and 98 percent of rated core thermal power, respectively. Earlier, at 1009 hours, the Control Room [NA] (CR) emergency filtration system monthly performance test was begun utilizing Temporary Procedure 7945. At 1129 hours it was determined that the "B" train of Control Room (CR) Heating, Ventilating, and Air Conditioning [HVAC] refrigeration condensing unit [CDU] (RCU) 1/2-9400-102 was not operable. The RCU was cycling on and off on low compressor [CMP] suction pressure which was causing the cooling coils [CCL] in the air handling unit (AHU) 1/2-9400-100 to freeze. QOS 5750-02, "Control Room Emergency Filtration System Inoperable Outage Report," was initiated. Nuclear Work Request (NWR) Q02391 was written to troubleshoot the RCU and repair as necessary. An Emergency Notification System (ENS) phone call was made at 1156 hours per 10CFR50.72(b)(2)(iii)(D).

On August 5, 1992, the "B" CR HVAC system was started to facilitate troubleshooting by the Mechanical Maintenance (MM) and Technical Staff (TS) departments. During troubleshooting, a MM technician observed that the liquid line filter (FLT) on the discharge of the compressor appeared to be plugged, which would cause the RCU to cycle on low compressor suction pressure. This filter was then bypassed to verify this observation. When the filter was bypassed, the RCU operating parameters returned to normal levels and the cooling coils did not freeze as before.

On August 6, 1992 a service technician from Johnson Contracting Company, Inc. arrived at the station to assist in further troubleshooting. During troubleshooting, the service technician also noted that the filter appeared to be plugged and agreed that this was the reason that the RCU was not operating properly.

On August 7, 1992, the service technician returned to the station to oversee filter replacement. When the filters were removed, the service technician noted that the filters had a heavy carbon buildup on them. The technician stated that this buildup was the result of running the compressor at excessive discharge pressure in the past. Controlled vendor manual C0069 provides operating instructions from the compressor installer, American Air Filter (AAF), to run the compressor with a discharge pressure of 294 pounds per square inch gauge (psig). However, the service technician stated that at this higher pressure, the temperature is high enough to cause some of the compressor oil to turn to carbon residue which then collects on the filter. After a long period of time this carbon residue would plug the filter to the point where the system would not function adequately. This statement is supported by the operating instructions of the compressor manufacturer, Carrier Corporation. These instructions are also included in controlled vendor manual C0069 and state that the normal operating compressor discharge pressure range is 200 to 280 psig. The technician suggested that the station change the vendor manual so that the RCU would be run at a lower discharge pressure. After filter replacement was complete, the RCU was run and proper operation was verified. At 1755 hours NWR Q02391 was released for testing and the monthly performance test was started again using Temporary Procedure 7945.

On August 8, 1992, at 0444 hours, the monthly performance test was successfully completed at a compressor discharge pressure of 200 psig, which is in agreement with Carrier Corporation's operating instructions. This was accomplished by manually throttling inlet water flow to the condenser section of the RCU until the desired compressor discharge pressure was achieved. Outage Report QOS 5750-02 was also closed out and the "B" train of CR HVAC was declared operable.

C. APPARENT CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(v), which requires the licensee to 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 apparent cause of this event was incorrect vendor manual compressor operating instructions from AAF which resulted in the station operating the compressor at excessive discharge pressure. This higher pressure resulted in a higher temperature which caused some of the compressor oil to become carbon residue. This carbon residue proceeded to plug the liquid line filter causing the RCU to cycle on and off on low compressor suction pressure.

D. SAFETY ANALYSIS OF EVENT:

The safety significance of this event was minimal. The design function of the CR ventilation system as described in the Updated Final Safety Analysis Report (UFSAR) is to provide radiological protection to the CR operators in the event of a design basis accident (DBA) loss of coolant accident (LOCA). This function was not compromised in any manner by the failure of the RCU because the air filtration unit (AFU), which provides this protection during an accident, is independent of the RCU. Additionally, the "A" train of CR HVAC can be utilized for use during an emergency situation and was still available.

E. CORRECTIVE ACTIONS:

The immediate corrective actions for this event were to declare the "B" train of CR HVAC inoperable, initiate QOS 5750-02, and initiate NWR Q02391.

Additional corrective actions were to troubleshoot the RCU with a service technician and replace the liquid line filter. The CR emergency filtration system monthly performance test was then completed, QOS 5750-02 was closed out, and the "B" train of CR HVAC was declared operable at 0444 hours on August 8, 1992. A procedure revision to QOP 5750-9, "Control Room Ventilation System," was completed to ensure that the new discharge pressure range is maintained during operation of the compressor.

There are several future corrective actions for this event. The station will revise controlled vendor manual C0069 to state the proper compressor discharge pressure range. AAF and Carrier Corporation have already been contacted concerning the discrepancy between the discharge pressure operating range of the two vendors (NTS #2542009207501).

A preventive maintenance schedule for the liquid line filter will be developed if recommended by the manufacturer (NTS #2542009207502). The station will also perform the recalibration of the control instrumentation for flow control valve [FCV] 1/2-5741-333 (NTS #2542009207503). This valve is controlled to modulate flow to the condenser [COND] section of the RCU in order to maintain a preset compressor discharge pressure. Since the operating discharge pressure range of the compressor is being changed, the control instrumentation for the valve must be recalibrated to be in agreement.

F. PREVIOUS EVENTS:

There are no previous events where the "B" train of CR HVAC was made inoperable due to a failure of the RCU.

G. COMPONENT FAILURE DATA:

The liquid line filter is manufactured by Sporlan Valve Company, model #RC-10098.