

## LICENSEE EVENT REPORT (LER)

Form Rev. 2.0

Facility Name (1) C Cities Unit One										Docket Number (2) 0   5   0   0   0   2   5   4										Page (3) 1   of   0									
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B-Train Control Room Ventilation Air Handling Unit breaker cycled and tripped during monthly test due to an undetermined cause.

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 Name	Docket Number(s)																			
C	5	1	9	9	7	9	7	--	0	2	0	--	0	0	0	6	1	8	9	7	Quad Cities Unit 2	0	5	0	0	0	2	6	5
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																										
POWER LEVEL (10)			20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)														
0			20.405(a)(1)(i)				50.36(c)(1)				X 50.73(a)(2)(v)				73.71(c)														
8			20.405(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)				Other (Specify in Abstract below and in Text)														
9			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 Charles Peterson, Regulatory Affairs Manager, ext. 3609										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)

YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO										Expected Submission Date (15)										Month										Day										Year																			

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

## ABSTRACT

On 051997, at 2254 hours, Unit One was in Power Operation and Unit Two was in Cold Shutdown. The B-Train Control Room (CR) Ventilation System became inoperable when an Air Handling Unit (AHU) breaker tripped when performing a monthly surveillance. During a procedural check of relay contacts, the CR operator attempted to start the AHU and the breaker cycled several times and tripped. Immediate actions were to exit the procedure, restart the A-Train CR Ventilation System, and enter a 30-day Limiting Condition for Operation (LCO). On 052997 at 0320 hours, Operations successfully completed the affected surveillance, the B-Train CR Ventilation system was declared operable, and Operations exited the 30-day LCO.

The cause of this event could not be determined. Corrective actions were to conduct multiple tests to ensure the equipment would function as designed.

The safety consequences of this event to on-site personnel and the general public were minimal. The affected system is not intended to mitigate dose to the general public, and the normal ventilation system was capable of mitigating dose to CR personnel.

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FACILITY NAME (1)  Cities Unit One	DOCKET NUMBER (2)  0   5   0   0   0   2   5   4	LER NUMBER (6) <table border="1"> <tr> <td>Year 9   7</td> <td>-</td> <td>Sequential Number 0   2   0</td> <td>-</td> <td>Revision Number 0   0</td> </tr> </table>			Year 9   7	-	Sequential Number 0   2   0	-	Revision Number 0   0	PAGE (3)  2   OF   0   5
Year 9   7	-	Sequential Number 0   2   0	-	Revision Number 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: B-Train Control Room Ventilation Air Handling Unit breaker cycled and tripped during monthly test due to an undetermined cause.

A. CONDITIONS PRIOR TO EVENT:

Unit: 1	Event Date: 051997	Event Time: 2254
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 089
Unit: 2	Event Date: 051997	Event Time: 2254
Reactor Mode: 4	Mode Name: Cold Shutdown	Power Level: 000

This report was initiated by Licensee Event Report (LER)254\97-020.

Power Operation (1) - Mode switch in the RUN position with average reactor coolant temperature at any temperature.

Cold Shutdown (4) - Mode switch in Shutdown position with average reactor coolant temperature  $\leq 212$  degrees F.

DESCRIPTION OF EVENT:

On 051997 at 2254 hours, Unit 1 was in Power Operation at 89% reactor power and Unit 2 was in Cold Shutdown. Operating personnel were performing QCOS 5750-02, "Control Room (CR) Emergency Filtration System [VI] Monthly Test."

Prior to step H.2.d.(3), the in-plant B-Train Air Handling Unit (AHU) control switch [33] was in Pull-to-Lock (PTL) and the CR AHU control switch was in the neutral position. At step H.2.d.(3), the procedure directed the in-plant Non-Licensed Operator (NLO) to move the in-plant AHU control switch from PTL to STOP. The Nuclear Station Operator (NSO) then placed the CR AHU switch to START while the NLO was continuing to hold the in-plant AHU switch in STOP. The AHU started and ran for 2-3 seconds. When the NSO released the CR switch to the neutral position, the AHU rapidly cycled on and off 2 or 3 times after which the AHU breaker tripped. The B-Train CR Ventilation system Refrigeration Control Unit was declared inoperable entering a 30-day Limiting Condition for Operation (LCO). A 4-hour ENS phone call was made on 052097 at 0251 hours.

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

During the investigation of this event, it became apparent that QCOS 5750-02 step H.2.d.(3) should have directed the in-plant AHU control switch to be placed in AUTO instead of in STOP. System Engineering attempted to identify if the AHU breaker would rapidly cycle and trip as a result of the operator actions in this event. Based on a review of the electrical prints, if the in-plant control switch was held in STOP and the CR control switch was taken to START, the AHU would start and then would just stop when the CR control switch was released to the neutral position. Electrical Maintenance meggered the power cables and motor and inspected the thermal overloads discovering no discrepancies. In addition, Electrical Maintenance and System Engineering verified control circuit wiring and discovered no discrepancies. An Interim Procedure (IP) was developed to operate the AHU without the thermal overloads installed to try to duplicate the motor cycling event, allowing the circuitry to be monitored without actually running the motor. On 052897, this testing IP was performed. The operator at the local panel held the in-plant control switch in STOP. Another operator placed the CR control switch in START, and the indicating lights showed a start signal. With the in-plant control switch still held in STOP, the CR operator released the CR control switch to the neutral position and the indicating lights showed an expected stop signal without any cycling of the breaker. The affected section of the IP was then performed again, and the expected correct response was received again. On 052997 at 0320 hours, Operations successfully completed QCOS 5750-02, the B-Train CR Ventilation system was declared operable, and Operations exited the 30-day LCO. QCOS 5750-02 was revised following the event to clarify switch positioning.

### C. CAUSE OF THE EVENT:

The cause of the AHU breaker cycling on and off could not be determined. System Engineering considered potential scenarios during the troubleshooting, these scenarios and their dispositions are listed below.

1. The in-plant control switch was not held solidly in STOP by the NLO, and floated back and forth between STOP and PTL.

This was eliminated as a possible cause. The circuitry as shown on the applicable schematics does not support fan stops & starts by the control switch going back and forth between STOP and PTL.

2. The in-plant control switch was not held solidly in STOP by the NLO, and floated back and forth between STOP and AUTO.

This was eliminated as a possible cause. The circuitry as shown on the applicable schematics does not support fan stops & starts by the control switch going back and forth between STOP and AUTO.

3. The wiring diagram is not the same as shown on the schematic.

This was eliminated as a possible cause. The wiring diagrams have been traced through, highlighted, and verified to match the starting circuitry of the applicable schematic.

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4. The field wiring is not in accordance with the wiring diagram.

This was eliminated as a possible cause. Wiring checks were performed which verified the wire colors and cable numbers for field wires, including verifying the number of wires on each terminal and the wire labels (if labelled) for internal panel wires. Any questionable wires were traced by hand to verify the correct terminations.

5. The CR NSO held the control switch between START and AUTO or, the CR operator moved the control switch slowly from START to AUTO. At the point in time when the switch was in a mid-position, the contacts vibrated open and closed or, sparking occurred across the contacts.

This was eliminated as a possible cause. The CR NSO stated and the Unit Supervisor confirmed that the NSO held the control switch in START for 2 or 3 seconds, and then released it to AUTO before the cycling occurred.

6. A component in the circuit failed (control switch or relay failure).

This was eliminated as a possible cause. The fan motor start and run circuit was exercised repeatedly to prove the circuitry and components were functioning normally before it was declared operable. The circuit was operated five times by normal troubleshooting, twice by the testing IP (attempting to repeat the off/on cycling event with the same operator in the plant), and finally once by the performance of QCOS 5750-02.

The monthly performance of QCOS 5750-02 will continue to monitor the proper operation of the B-Train AHU circuitry and breaker.

D. SAFETY ANALYSIS:

The safety consequences at the time of the event were minimal. In the case of a Design Basis Loss of Coolant Accident (LOCA), operator action is required within 1 hour to ensure the CR ventilation is placed in the isolation line up to provide cooling to the CR with the safety related Air Filtration Unit filtering outside air and maintaining the required positive pressure in the CR. The non safety related A-Train was always available during the event to provide this function. In the highly unlikely case where this event would have occurred with a combined LOCA and a loss of offsite power, the 1 hour allowance for starting the B-Train would have been sufficient in this event, as the B-Train AHU breaker could have been reset within 10 minutes or the A-Train CR ventilation system could be returned to service via feed from the 1/2 emergency diesel generator. This event had no effect on the health and safety of the public or on-site personnel.

E. CORRECTIVE ACTIONS

Corrective Actions Completed:

1. Circuitry testing was completed under an IP and then QCOS 5750-02 was performed to declare the system operable.

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F. PREVIOUS OCCURRENCES:

A search of LER's over the last 2 years associated with Operations activities which resulted in CR ventilation breaker trips found no previous events.

G. COMPONENT FAILURE DATA:

Not Applicable.