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LWP-96-027

March 20, 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) 96-002, 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)(ii)(A). The Licensee shall report any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded, or that resulted in the nuclear power plant being in an unanalyzed condition that significantly compromised plant safety.

No additional commitments are being made by this letter:

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
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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A Unicom Company

**Licensee Event Report
Reviewer Assignment Form**

Revised 12/01/94

LER # 2541809600200

Date: February 20, 1996

Subject: LER 1-96-002 P CR HVAC system inoperable due to a design oversight
involving analyzer.

Signatures of reviewers indicating review and approval of item:

Systems Eng. Supv:

Del C. Miller / 3/19/96
Date

Operating Eng.:

^{to}
Alex L. Misch / 3/19/96
Date

_____/_____
Date

_____/_____
Date

_____/_____
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Date

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Date

_____/_____
Date

Approved:

J. Parkis / 3/20/96
Station Manager/PORC Chairman Date

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)

Unit 1 LER 96-002 Inoperable Due To A Design Oversight Involving The Toxic Gas Analyzer

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	2	2	0	9	6	9	6	--	0	0	2	--	0	0	0	3	2	0	9	6	Quad Cities U2	0 5 0 0 0 2 6 5
										0 5 0 0 0												

OPERATING MODE (9)

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

POWER LEVEL (10)

2	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
0	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

TELEPHONE NUMBER

Nick Chrissotimos, Regulatory Assurance, Ext. 3100

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

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 2/20/96 at 1947 hours, Unit One was in the REFUEL mode at 0 percent power and Unit Two was in the RUN mode at 100 percent power. At this time, Dresden station personnel notified Quad Cities Station personnel of a potential design oversight on the toxic gas analyzer for the Control Room (CR) heating, ventilating, and air conditioning (HVAC) system. This oversight would prevent operation of the booster fans for the charcoal adsorber filter train. An investigation into the applicability to Quad Cities station was commenced.

On 2/21/96 at 2105 hours, the "B" CR HVAC system was declared inoperable and further analysis for corrective actions was begun.

On 2/23/96, a procedure change to QCOP 5750-09, "Control Room Ventilation System," was made to allow for operation of the booster fans. The "B" CR HVAC system was declared operable at 2030 hours.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION												Form Rev. 2.0											
FACILITY NAME (1)			DOCKET NUMBER (2)				LER NUMBER (6)				PAGE (3)												
							Year		Sequential Number		Revision Number												
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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: Unit 1 LER 96-002 inoperable due to a design oversight involving the toxic gas analyzer.

A. CONDITIONS PRIOR TO EVENT:

Conditions Prior to Event:

Unit: One Event Date: 2/20/96 Event Time: 1947
 Reactor Mode: 2 Mode Name: REFUEL Power Level: 0

This report was initiated by Licensee Event Report 254\96-002.

REFUEL (2) - In this position interlocks are established so that one control rod only may be withdrawn when flux amplifiers are set at the proper sensitivity level and the refueling crane is not over the reactor. Also, the trip from the turbine control valves, turbine stop valves, main steam isolation valves, and condenser vacuum are bypassed. If the refueling crane is over the reactor, all rods must be fully inserted and none can be withdrawn.

B. EVENT DESCRIPTION

On 2/20/96 at 1947 hours, Unit One was in the REFUEL mode at 0 percent power and Unit Two was in the RUN mode at 100 percent power. At this time, Dresden Station Engineering personnel notified Quad Cities Station Engineering personnel that their Control Room (CR) heating, ventilating, and air conditioning (HVAC) system was made inoperable due to a design oversight associated with the toxic gas analyzer for the system. A normally energized relay in the analyzer that is fed from non safety-related power has contacts on it which serve to prevent operation of the booster fans for the charcoal adsorber filter train during a toxic gas event. Since this relay is normally energized, the contacts that disable the fans are normally open. However, if a loss of offsite power (LOOP) were to occur with a loss of coolant accident (LOCA), this relay would deenergize (simulating a toxic gas event) and close the contacts, thereby preventing operation of the booster fans.

Engineering personnel at Quad Cities began an immediate investigation into the system configuration to see if a similar problem existed. On 2/21/96, after reviewing design documents and performing a walkdown of the system, Engineering personnel determined that the same condition was present at Quad Cities station. Operations was made aware of the findings and the "B" train of CR HVAC was declared inoperable at 2105 hours.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION												Form Rev. 2.0	
FACILITY NAME (1)				DOCKET NUMBER (2)				LER NUMBER (6)				PAGE (3)	
								Year		Sequential Number		Revision Number	
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On 2/23/96, after evaluating the system to determine a course of action, Engineering personnel processed an interim procedure, IP 96-014, for QCOP 5750-09, "Control Room Ventilation System," which required Operations personnel to remove the relay in question in the event of a LOCA with a LOOP. Removing the relay essentially opens the contacts that close on a LOOP, thereby allowing operation of the booster fans. This interim procedure was replaced by a permanent revision to the procedure that same day. At 2030 hours, the "B" train of CR HVAC was declared operable.

C. APPARENT CAUSE OF THE EVENT

DESIGN CONFIGURATION AND ANALYSIS

The CR HVAC system is designed to automatically transfer the ventilation to the recirculation mode with outside air isolated on the detection of toxic gas, a LOOP, or a loss of instrument air. When this occurs, the booster fan discharge dampers automatically fail closed and must be manually opened if operation of a booster fan is desired. The design is this way to provide protection from toxic gas since the response time is more critical for this event than a radiological event. QCOP 5750-09 already contained statements stating that the booster fan dampers would need to be manipulated manually if operation was desired. These steps have been in the procedure since the system was installed. Since the design of the system requires that an operator be present locally to start a booster fan during a LOCA with a LOOP, it appears that the intent of the design was to also have the operator remove the affected relay in the toxic gas analyzer panel. However, it seems that final review of the modification failed to identify the need to include statements in the procedure to perform this task. The toxic gas analyzer panel is located directly next to the booster fans and their associated dampers.

D. SAFETY ANALYSIS OF THE EVENT

The safety significance of this event is considered minimal. If a LOCA with a LOOP would have occurred with the relay installed and deenergized, the booster fans would have been unavailable for operation. However, other factors were in place to help reduce CR operator dose levels. The CR HVAC system automatically transfers to the recirculation mode with outside air isolated on a detection of LOCA signals. This action maintains the air that is already radionuclide free in the CR zone and allows only small amounts to enter the zone through normal inleakage. In addition, the Standby Gas Treatment system automatically starts on a LOCA signal and its charcoal adsorber efficiency is significantly higher than the 90 percent required by the Technical Specifications and used in the design analysis of the CR HVAC system. Therefore, dose rates in the Reactor Building would be less than those assumed for the CR dose analysis. Bottled air, self-contained breathing apparatus, and iodine tablets are also available to the CR operators to mitigate against the effects of airborne contamination in the CR. All of these factors serve to lessen the significance of this event noticeably.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev. 2.0

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		Year		Sequential Number	Revision Number	
Quad Cities Unit One	0 5 0 0 0 2 5 4	9 6	-	0 0 2	-	0 0 4 OF 0 4

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

E. CORRECTIVE ACTIONS

The immediate corrective actions for this event were to declare the "B" CR HVAC system inoperable.

Additional corrective actions were to generate interim procedure, IP 96-014, and then generate a permanent procedure revision to QCOP 5750-09. This revision directs an operator to remove the affected relay in the toxic gas analyzer control panel. An evaluation of the dose received by an operator to perform this evolution, indicated that the dose received would be insignificant.

No further corrective actions are needed as a result of this event.

F. PREVIOUS EVENTS

There are no previous events where the B CR HVAC system was declared inoperable due to a procedure deficiency resulting from a design oversight.

G. COMPONENT FAILURE DATA

There was no component failure associated with this event.