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RLB 93-029

February 9, 1993

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

Reference: Quad Cities Nuclear Power Station
Docket Number 50-265, DPR-30, Unit Two

Enclosed is Licensee Event Report (LER) 93-003, 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

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Quad 1ies Unit Two Docket Number (2) 0 | 5 | 0 | 0 | 0 | 2 | 6 | 5 | 1 | of | 0 | 5 | Page (3) 1 of 0 5
 Title (4)

Loss of HPCI Control Light Indication Due To Cocked Saddle On Terminal Block

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
0 1	1 1	9 3	9 3	0 0 3	0 0	0 2	1 0	9 3	0 5 0 0 0 1 1

OPER MO' 1 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

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
20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	in Abstract
20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	below and in
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	Text)

LICENSEE CONTACT FOR THIS LER (12)

Name Nick Radloff, Tech Staff Engineer, Ext. 2942 TELEPHONE NUMBER 3 | 0 | 9 | 6 | 5 | 4 | 1 | 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 January 11, 1993, at 2330 hours, Unit Two was in the SHUTDOWN mode at 0 percent rated core thermal power. At the start of the shift, the Unit Two NSO had started a surveillance check of the control room panels. At this time, the NSO discovered no light indication existed for the HPCI Motor Gear Unit (MGU), Motor Speed Changer (MSC), and Stop valve. Electrical Maintenance (EM) personnel were notified and Nuclear Work Request #Q05233 was initiated. HPCI was not required to be operable per Technical Specifications and was already isolated due to a low reactor pressure isolation. EM determined the loss of power was due to a cocked saddle which did not allow the wire and terminal to make proper contact. The saddle was straightened and Work Request Q05233 was closed out.

The cause of this event is from a cocked saddle on the terminal block AA, fuse f-12.

Corrective actions included Operating verifying the fuses and feedbreakers on the HPCI system did not create an open circuit and EM straightening the cocked saddle for three fuses.

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

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 Two	0 5 0 0 0 2 6 5	9 3	-	0 0 3	-	0 0	0 2 of 0 5
TEXT Energy Industry Identification System (EIIS) 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: Loss of HPCI control light indication due to cocked saddle on terminal block.

A. CONDITIONS PRIOR TO EVENT:

Unit: Two Event Date: January 11, 1993 Event Time: 2330
Reactor Mode: 1 Mode Name: SHUTDOWN Power Level: 0%

This report was initiated by Deviation Report D-4-2-93-009.

SHUTDOWN Mode (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 January 11, 1993, at 2330 hours, Unit Two was in the SHUTDOWN mode at 0 percent rated core thermal power. The Unit Two Nuclear Station Operator (NSO) had completed shift turnover including a successful panel check of the High Pressure Coolant Injection (HPCI) [BJ] system. The NSO on the next shift immediately started his surveillance check of the control room panels. The nuclear station operators perform this surveillance at the beginning and at the end of every shift as a minimum practice standard. At this time, the NSO discovered no light indication [SCV] existed for the High Pressure Coolant Injection (HPCI) Motor Gear Unit (MGU), Motor Speed Changer (MSC), and Stop valve on the 902-3 panel [PL]. The light indications should have signified the MGU was at the High Speed Stop (HSS), the MSC at the Low Speed Stop (LSS), and the Stop Valve closed. The NSO replaced each of the light indication bulbs for the MGU, MSC, and Stop valve; however, the light indication never returned. Operating personnel checked fuses [FU] and electrical feed breakers [BKR], and determined no open circuits existed. Electrical Maintenance (EM) personnel were notified and Work Request #Q05233 was initiated. HPCI was not required to be operable per Technical Specifications and was already isolated due to low reactor pressure isolation.

At 0100 hours, EM personnel discovered that the saddle connecting the 125 Volt Direct Current (VDC) Main Feed wire lug to HPCI terminal block AA in the 902-39 panel, fuse #12, was cocked causing a loose wire connection. EM personnel corrected the connection along with two other cocked saddles previously identified. Work Request #Q05233 was then closed out.

At 0140 hours on January 12, 1993, the NRC was notified of the event via the Emergency Notification System (ENS) in order to comply with the requirements of 10CFR50.72(b)(2)(iii)(D).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev 2.0

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year	///	Sequential	///	Revision				
				Number		Number				
Quad Cities Unit Two	0 5 0 0 0 2 6 5	9 3	-	0 0 3	-	0 0	0 3	OF	0 5	
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]										

C. APPARENT CAUSE OF EVENT:

This report is being submitted to comply with 10CFR50.73(a)(2)(v)(D) which requires the licensee report any event or condition that alone could have prevented the fulfillment of the safety function of systems that are needed to mitigate the consequences of an accident.

This event was caused by the cocked saddle on the terminal block AA, fuse F-12 in the 902-39 panel. The saddle provides a compression fit between any wires and terminal blocks to ensure a continuous circuit connection. The cocked saddle created a loose spacing from the wire connection to the terminal block causing an open circuit when the wire connection loosened up. This caused a loss of power to the MSC and MGU motors and light indications, stop valve light indication, reset solenoid valve (SV-8), trip solenoid valve (SV-12), and thrust bearing alarm testing solenoid valves (SV-9 and 11). Also, power was lost to the solenoid valves for the Air-Operated (AO) 2-2301-31 and 2-2301-32 valves. The exact cause of the cocked terminal saddle could not be determined.

An investigation into previous NWR's was performed using Total Job Management (TJM) computer. Several work requests were found involving work in the 902-39 panel, but none involved lifting the lead on terminal block AA, fuse #12.

D. SAFETY ANALYSIS OF EVENT:

The safety of the plant and personnel was not affected in this event. Per Technical Specification 3.5.C.1, the HPCI subsystem shall be operable whenever the reactor pressure is greater than 150 psig and fuel is in the reactor vessel. During this event, the reactor pressure was below 150 psig; therefore, HPCI was not required to be operable throughout this event.

If reactor pressure was above 150 psig and the cocked saddle caused a loss of power to the aforementioned components, HPCI would have been unable to fulfill its intended safety function. However, per Technical Specification 3.5.C.3, if HPCI is found inoperable, reactor operation is allowed for fourteen days provided all active components on the Automatic Pressure Relief (APR) [SB] subsystems, the Core Spray (CS) [BM] subsystems, Low Pressure Coolant Injection (LPCI) [BO] mode of Residual Heat Removal (RHR) system, and Reactor Core Isolation Cooling (RCIC) [BN] system are operable.

Also, HPCI could have been manually started if an auto-initiation signal was present and HPCI was required to operate. The NSO would not have been able to operate HPCI from the control room; however, the system could have been operated locally using QCOP 2300-8, HPCI Local Manual Operation.

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 Two	0 5 0 0 0 2 6 5	9 3	-	0 0 3	-	0 0	0 4	OF	0 5
TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [XX]									

Six cocked saddles were identified during an electrical walkdown in December, 1992, including this saddle. An evaluation of these saddles was done by an Electrical Maintenance Engineer and an Operating Engineer. It was decided that the cocked saddles did not constitute an immediate operability concern. The work requests to correct the cocked saddles were then scheduled for the upcoming Unit Two refuel outage. At this time all work to correct these saddles has been completed except for one. If the cocked saddle caused an open circuit, the auto-initiation relay logic for the RHR LPCI "A" loop circuit would be lost. However, the NSO would know immediately from a loss of power due to multiple annunciators energizing in the control room and take corrective actions.

E. CORRECTIVE ACTIONS:

The immediate corrective actions consisted of replacing the light indicating bulbs and having operating personnel successfully verify the fuses and feedbreakers had not created an open circuit.

EM personnel were notified of the problem and Nuclear Work Request (NWR) Q05233 was initiated. After troubleshooting, EM personnel were able to immediately identify and correct the cocked saddle for fuse #12 on terminal block AA. Also, two other cocked saddles were corrected for fuses #3 and #4 on terminal block EE in the 902-39 panel. Work Requests Q04970 and Q04969 were already written identifying these problems due to an earlier electrical walkdown of the Control Room and auxiliary equipment room cabinets in December, 1992.

A total of six cocked saddles were identified during the electrical walkdown in December, 1992. Work has presently been completed for five of the six cocked saddles. Work for the last cocked saddle is scheduled under NWR Q04971.

F. PREVIOUS EVENTS:

A search of previous events over the last five years found the following License Event Reports (LER) caused by loose or poor wire connections.

- DVR 04-01-89-058 (LER 89-010)- Reactor scram from an induced voltage due to a loose wire on the condenser low vacuum pressure switch indication lamp.
- DVR 04-02-91-057 (LER 91-08) - 2-220-45 automatically closed due to a loose wire.
- DVR 04-02-92-095 (LER 92-021) - Unanticipated offgas isolation due to a wire lug separating from the terminal with a cocked saddle.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev 2.0

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year	///	Sequential	///	Revision				
				Number		Number				
Quad Cities Unit Two	0 5 0 0 0 2 6 5	9 3	-	0 0 3	-	0 0	0 5	OF	0 5	
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]										

The corrective actions for the first two events were to repair the loose connections and discuss the event at a tailgate meeting. These previous events are not considered to be related to this event. The last event is related to this event because six cocked saddles were identified from an electrical walkdown which was part of the corrective actions from LER 92-021. Work requests were initiated to correct the cocked saddles. The cocked saddle in this event was identified during the walkdown.

G. COMPONENT FAILURE DATA:

There was no component failure attributed to this event.