



Commonwealth Edison

Quad Cities Nuclear Power Station

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RLB-90-104

April 5, 1990

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) 90-005, 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/MJB/eb

Enclosure

cc: R. Stols
R. Higgins
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			
Title (4) Failure of Valve MO-1-1301-61 to Open Due to Contactor at Feed Breaker not Closing Completely.																	
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	1 3	9 0	9 0	0 0 5	0 0	0 4	0 5	9 0			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) 0 1 2			20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)					
			20.405(a)(1)(i)			50.36(c)(1)			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 K. J. Hill, Technical Staff Engineer, Ext. 2150												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							
X	B N	C N T R	C 7 7 0	Y													

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:

At 0436 hours on March 13, 1990, Unit One was operating in the RUN mode at 12 percent rated core thermal power. The Reactor Core Isolation Cooling (RCIC) Turbine Steam Supply motor operated valve, MO-1-1301-61, failed to open while performing QOS 1300-1, RCIC Monthly and Quarterly Test. During additional attempts to open the valve, it was determined that the open contactor at the feed breaker was failing to close completely. The cause of the contactor failure is attributed to dirt build-up on the operating roller causing it to bind against the operating lever.

The roller was cleaned and the contactor functionally tested to verify proper operation. At 1547 hours, the valve was successfully stroked from the control room and at 1700 hours QOS 1300-1 was completed. Corrective action will include inspecting the contactors on both unit motor control centers (MCC), developing a preventive maintenance program, and procedure review. This report is being submitted in accordance with 10CFR50.73(a)(2)(v)(D).

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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: Failure of Valve MO-1-1301-61 to Open Due to Contactor at Feed Breaker not Closing Completely.

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: March 13, 1990 Event Time: 0436
Reactor Mode: 4 Mode Name: RUN Power Level: 12%

This report was initiated by Deviation Report D-4-1-90-023

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 0436 hours on March 13, 1990, Quad Cities Unit One was operating in the RUN mode at approximately 12 percent rated core thermal power.

Prior to this event, Unit One was in cold shutdown following a reactor scram which occurred at 0114 hours on March 10, 1990, and is reported in Licensee Event Report (LER) 254/90-004. During the time following the March 10th scram, the Reactor Core Isolation Cooling (RCIC) [BN] system had been manually initiated to inject into the vessel for approximately 15 seconds due to a momentary loss of the reactor feed pumps. Reactor startup commenced at 1816 hours on March 12, 1990, and criticality was reached at 2029 hours.

At 0436 hours on March 13, 1990, the Unit One Nuclear Station Operator (NSO) was performing QOS 1300-1, RCIC Monthly and Quarterly Test, as part of post-maintenance testing for unrelated maintenance performed during the outage under Work Request Q80072. During performance of this test, the RCIC Turbine Steam Supply motor operated valve [V], MO-1-1301-61, failed to open using the control room switch [HS]. The Shift Control Room Engineer (SCRE) and Shift Engineer (SE) were notified of the failure. The Unit One RCIC system was declared inoperable and RCIC System Outage Report, QOS 1300-01, was initiated.

The NSO attempted to open the valve several more times but was unsuccessful. An operator cycled the feed [JX] breaker [BKR] for the valve from the TRIP to CLOSE position several times and the NSO repeated his attempt, however, the valve again failed to open. An operator then attempted to open the valve with the local control switch [HS] in the RCIC room but was unsuccessful.

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Electrical Maintenance (EM) personnel were notified of the failure and asked to investigate. With EM personnel in attendance in the control room and at the valves' feed breaker, the NSO attempted to open the valve from the control room. EM personnel at the feed breaker observed the open coil for the valve had energized, but the contactor [CNTR] was binding so that the contacts could not fully close. After several more attempts, the open contactor closed and the valve opened. The turbine [TRB] started as normal and was run to verify proper operation. After turbine shutdown and closure of valve MO-1-1301-61, the NSO attempted to re-open the valve but it failed to open as before. After several attempts, the valve opened.

Work Request Q83109 was initiated to investigate and repair the problem with the open contactor. NRC notification of the event via the Emergency Notification System (ENS) phone was completed at 0728 hours on March 13, 1990, to comply with the requirements of 10CFR50.72(b)(2)(iii)(D).

The feed breaker for valve MO-1-1301-61 was taken out of service at 0905 hours on March 13, 1990. EM personnel inspected the open contactor and found that the operating roller for the lower electrical interlock was sticking which prevented the contactor from fully closing. The cause of the sticking appeared to be from dirt which had collected on the operating roller bearing. The roller and bearing surfaces were properly cleaned, after which it rotated freely. The armature lever shaft was also cleaned as a precaution. The contactor spring pressure, magnetic air gap, and pickup voltage were checked and found to be acceptable.

The breaker was returned to service at 1340 hours on March 13, 1990. At 1547 hours, the valve was successfully stroked from the control room and at 1700 hours QOS 1300-1 was completed. The Unit One RCIC system was declared operable and the outage report was terminated.

C. APPARENT CAUSE OF EVENT:

This event is being reported according to 10CFR50.73(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 cause of this event has been attributed to component failure. The open contactor on the feed breaker for valve MO-1-1301-61 failed to close which prevented the valve from opening. The cause of the contactor failure is attributed to dirt build-up on the operating roller causing it to bind against the operating lever.

The dirt build-up apparently occurred over a period of time and is not attributable to a single event or operation of the breaker. It is not likely that the valve failure was related to operation of the RCIC system during the reactor scram prior to this event.

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D. SAFETY ANALYSIS OF EVENT:

The safety significance of this event is minimal due to the availability of backup systems and the short period of time that RCIC was inoperable.

Technical Specification 3.5.E requires that if the RCIC system is found to be inoperable, continued reactor operation is permissible for 7 days provided that the High Pressure Coolant Injection (HPCI) [BJ] system is operable. In this event, once RCIC was found to be inoperable, testing of HPCI was initiated and successfully completed at 0920 hours of the same day.

RCIC was demonstrated operable following the reactor scram and operability testing of RCIC was performed as soon as possible following minor maintenance. The RCIC system is required by Technical Specification 3.5.E. to be operable whenever the reactor pressure is greater than 150 psig. The amount of time that RCIC could have been inoperable, when required to be operable, was 8 hours and 7 minutes. The RCIC system was inoperable for repairs for a total of 12 hours and 24 minutes.

E. CORRECTIVE ACTIONS:

The immediate corrective action consisted of declaring the RCIC system inoperable and initiating the outage report. Additional attempts to open the valve revealed that the open contactor on the feed breaker was not fully closing. EM personnel cleaned the operating roller on the lower electrical interlock at the breaker and performed functional checks to verify proper contactor operation. The valve was then successfully tested and the outage report terminated.

Electrical Maintenance will perform a review of the motor controller (MCC) cubicle maintenance procedure, QEPM 400-2. Vendor technical information will be utilized and the procedure revised accordingly (NTS 2542009002101).

A preventative maintenance program will be developed for the 250VDC Cutler-Hammer MCCs. (NTS 2542009002102).

Work Requests will be written to inspect, clean, and lubricate the contactors for both units MCCs (NTS 2542009002103).

F. PREVIOUS EVENTS:

There have been two previous reportable events since 1984 involving contactors on similar breakers failing to close. The two events are documented in LER's 254/85-17 and 254/86-27 and both involved the feed breaker for the Unit One RCIC pump discharge valve MO-1-1301-48. A search of the Nuclear Plant Reliability Data System (NPRDS) found no failures of similar contactors at any stations. Based on this information, the event appears to be isolated and no further corrective action is necessary.

G. COMPONENT FAILURE DATA:

The open contactor at the feed breaker for valve MO-1-1301-61 was manufactured by Cutler-Hammer, model number 952.