

## LICENSEE EVENT REPORT (LER)

Facility Name (1) QUAD-CITIES, NUCLEAR POWER STATION, UNIT One										Docket Number (2) 01501002154				Page (3) 1 of 04							
Title (4) Reactor Core Isolation Cooling Inoperable - Discharge Valve Would Not Open																					
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)								
									NA												
019	015	816	816	01217	010	019	216	816					01501002154								
OPERATING MODE (9) 3				THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																	
POWER LEVEL (10) 0 0 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 Douglas J. Britz, Technical Staff Engineer Ext. 2167										TELEPHONE NUMBER AREA CODE 309 654-2241											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPROS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPROS											
X	B1N	411	C101717	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)																					

On September 5, 1986, Unit One was in the STARTUP mode at 1 percent of rated core thermal power. At 0615, the unit operator attempted to open the Reactor Core Isolation Cooling (RCIC) [BN] Pump Discharge to Reactor Vessel Valve 1-1301-48 and the valve failed to open. RCIC was declared inoperable until the valve was manually opened 10 minutes later. High Pressure Coolant Injection (HPCI) [BJ] was available as a back-up during this time. The cause of this event was a high pick-up voltage on the 250 VDC motor operated valve contactor. The reason for the contactor to be out of adjustment is not known. The pick-up voltage on the contactor was changed and the valve was cycled successfully.

This report is submitted to you in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73 (a)(2)(v), which requires the reporting of any event that alone could have prevented the fulfillment of the safety function of systems needed to remove residual heat.

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		Year	Sequential Number	Revision Number									
Quad Cities Unit One	0   5   0   0   0   2   5   4	8   6	-	0   2   7	-	0   0	0   2	OF	0   1				
TEXT													

### PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power.  
Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

### IDENTIFICATION OF OCCURRENCE:

Reactor Core Isolation Cooling was inoperable due to Pump Discharge Valve 1-1301-48 250 VDC Motor contactor pick-up voltage too high.

Discovery Date: 09-05-86

Report Date: 09-26-86

This report was initiated by Deviation Report D-4-1-86-91

### CONDITIONS PRIOR TO OCCURRENCE:

STARTUP Mode(3) - R<sub>x</sub> Power 01% - Unit Load 000 MWe

STARTUP Mode(3) - Startup/Hot Standby - In this position, the reactor protection scram trips, initiated by condenser low vacuum and main steamline isolation valve closure are bypassed, the low pressure main steamline isolation valve closure trip is bypassed and the reactor protection system is energized, with IRM and APOL neutron monitoring system trips and control rod withdrawal interlocks in service.

### DESCRIPTION OF OCCURRENCE:

On September 5, 1986, Unit One was in the STARTUP mode with control rods being pulled. At 0615, with the unit at 1 percent of rated thermal power, the Nuclear Station Operator (NSO) performed the Reactor Core Isolation Cooling (RCIC) [BN] Motor Operated Valve Operability Test QOS 1300-3, cycling the valves from their respective control switch in the control room. The NSO attempted to open the RCIC Pump Discharge to Reactor Vessel Valve 1-1301-48 but was unsuccessful. RCIC was declared inoperable. An Equipment Attendant (EA) was dispatched to the valve and manually opened it at 0625. The NSO then attempted to close the valve with the control switch and was again unsuccessful. The EA was instructed to close the valve by 50 percent. The NSO was still unsuccessful at closing the valve with the control switch. The EA again manually opened the valve and Work Request Q51961 was initiated. Leaving the 1-1301-48 valve open effectively made the RCIC system operable. The High Pressure Coolant Injection (HPCI) [BJ] system was available during this time. The HPCI system functions as a back-up to the RCIC system as stated in Technical Specification 3.5.E.2.

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This report is submitted to you in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(v), which requires the reporting of any event that alone could have prevented the fulfillment of systems needed to remove residual heat.

APPARENT CAUSE OF OCCURRENCE

Electrical Maintenance personnel found that the motor contactor at 250 VDC Motor Control Center 1B compartment VO1, which provides power to valve 1-1301-48, was unable to pick-up when either the open or closing coil was energized. Electrical Maintenance removed the motor contactor assembly and bench tested the equipment. Two problems were found. The first problem was an excessive bend in the auxiliary contact interlock. The interlock was creating enough friction with the operating roller to increase the amount of voltage needed to pick-up the motor contactor coil. The second problem, which was closely related to the first problem, was the actual pick-up voltage of the motor contactor. Electrical Maintenance determined the pick-up voltage to be 260 VDC. The pick-up voltage was factory set originally at approximately 200 VDC. This pick-up voltage can be changed with an adjustment screw at the base of the coil.

It is not known how the motor contactor got out of adjustment. The motor contactor coil has not been worked on for at least the past year. The valve had been successfully tested on August 5, 1986 during the monthly RCIC Motor Operated Valve Operability Test QOS 1300-3. There is a possibility that dirt and other particle buildup could have changed the pick-up voltage gradually.

The motor contactor is a normally open single pole DC contactor manufactured by Cutler-Hammer model number 6002H336B. The motor operator is a Limitorque 1.8 HP model number SMB-00.

ANALYSIS OF OCCURRENCE:

The Reactor Core Isolation Cooling (RCIC) system is a standby safety system used to pump makeup water to the reactor vessel in the event of reactor isolation accompanied by loss-of-coolant flow from the reactor feedwater system. Excessive fuel temperatures would be encountered if the feedwater system were removed and decay heat continued to produce steam. The RCIC system provides sufficient makeup water to maintain reactor water level until the reactor pressure drops to a point where the Residual Heat Removal (RHR) [BO] system can be utilized.

On a low-low reactor water level or manual initiation, the RCIC system will start. This initiation signal will open (if not already open) the RCIC Pump Discharge to Reactor Vessel Valve 1-1301-48 allowing flow from the RCIC pump to be directed into the reactor vessel. This valve is normally left open; however, at the time of the incident, the valve had been left closed per Temporary Procedure 4154 due to minor leakage problems in the valves downstream of the 1-1301-48 valve. When the 1-1301-48 valve failed to open by control room action, this disabled the RCIC system. However, when the EA manually opened the valve, this enabled the RCIC system to perform its intended function. The time the system was actually inoperable was 10 minutes.

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TEXT									

In the event the RCIC system is inoperable, the High Pressure Coolant Injection (HPCI) system serves as a back-up per Technical Specification 3.5.E.2. The HPCI system was available during this event. Had this event occurred while the reactor was in the RUN mode, the safety implications would have been the same.

CORRECTIVE ACTION::

Electrical Maintenance readjusted the bend of the auxiliary contact interlock and moved the adjusting screw to set the motor contactor pick-up voltage to 205 VDC. Telephone conversations with Cutler-Hammer and the Station Electrical Engineering Department (SEED) have concurred with that setting. The motor contactor was reinstalled into the 250 VDC Motor Control Center and at 1900 hours of the same day, the NSO cycled the valve open and closed three times successfully. The valve was left in the closed position per Temporary Procedure 4154 due to minor leakage downstream of the valve.

The time that the RCIC system was inoperable was 10 minutes at which time the valve was manually opened. Operator control of the valve from the control room was unavailable for approximately 13 hours while repairs were being made.

The 1-1301-48 valve is tested monthly by the RCIC Motor Operated Valve Operability Test. This was an isolated incident and no other corrective action was required.

FAILURE DATA:

There have not been any previous failures of this type for the 1-1301-48 valve.



**Commonwealth Edison**

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

RLB-86-179

September 26, 1986

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 please find Licensee Event Report (LER) 86-027, Revision 00, for Quad-Cities Nuclear Power Station.

This report is submitted to you in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(v), which requires the reporting of any event that alone could have prevented the fulfillment of the safety function of systems needed to remove residual heat.

Respectfully,

COMMONWEALTH EDISON COMPANY  
QUAD-CITIES NUCLEAR POWER STATION

R. L. Bax  
Station Manager

RLB/MSK/dak

Enclosure

cc: J. Wojnarowski  
A. Morrongiello  
INPO Records Center  
NRC Region III

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