

Commonwealth Edison Company
Quad Cities Generating Station
22710 206th Avenue North
Cordova, IL 61242-9740
Tel 309-654-2241



November 24, 1999

SVP-99-229

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Unit 2
Facility Operating License No. DPR-30
NRC Docket No. 50-265

Enclosed is Licensee Event Report (LER) 265/99-003, 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)(B). The licensee shall report any event or condition that could have prevented the removal of residual heat.

There are no commitments associated with this report. Any actions described in the submittal represent intended or planned actions by Commonwealth Edison (ComEd) Company. They are described for the NRC's information and are not regulatory commitments.

Should you have any questions concerning his letter, please contact Mr. C.C. Peterson at (309) 654-2241, extension 3609.

Respectfully,

A handwritten signature in black ink that reads "Joel P. Dimmette, Jr." The signature is written in a cursive style.

Joel P. Dimmette, Jr.
Site Vice President
Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

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bcc: Project Manager – NRR
Office of Nuclear Facility Safety, - IDNS
Senior Reactor Analyst – IDNS
Manager of Energy Practice – Winston and Strawn
Director, Licensing and Compliance – ComEd
Vice President, Regulatory Services– ComEd
ComEd Document Control Desk Licensing (Hard Copy)
ComEd Document Control Desk Licensing (Electronic Copy)
W. Leech – MidAmerican Energy Company
D. Tubbs – MidAmerican Energy Company
Regulatory Assurance Manager – Dresden Nuclear Power Station
Regulatory Assurance Manager – Quad Cities Nuclear Power Station
NRC Coordinator – Quad Cities Nuclear Power Station
NSRB Site Coordinator – Quad Cities Nuclear Power Station
INPO Records Center
SVP Letter File

LICENSEE EVENT REPORT (LER)															Form Rev. 2.0										
Facility Name (1) Quad Cities Unit Two							Docket Number (2) 0 5 0 0 0 2 6 5						Page (3) 1 of 0 4												
Title (4) Reactor Core Isolation Cooling Overspeed Trip due to a Failed Governor Control Power Resistor																									
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	8	2	5	1999	1999	0	0	3	0	0	1	1	2	4	1999		0	5	0	0	0				
OPERATING MODE (9) 1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																							
POWER LEVEL (10)	1	0	0	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.36(c)(1)	50.36(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)	73.71(b)	73.71(c)	Other (Specify in Abstract below and in Text)	
LICENSEE CONTACT FOR THIS LER (12)																									
Name Charles C. 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 EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX												
X	B	N	J	X	X	9	9	9	Y																
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)		Month	Day	Year											
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO															
ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single-space typewritten lines) (16)																									

ABSTRACT:

On August 25, 1999, at 10:15 a.m., the Unit 2 Reactor Core Isolation Cooling (RCIC) system turbine tripped on overspeed immediately after the opening of the steam inlet valve. RCIC was being functionally tested for a return-to-service following maintenance and testing.

The root cause of this event is failure of the 125 vdc governor power supply resistor.

Corrective actions include replacement of the resistor on Unit 2, replacement of this resistor on Unit 1 and the implementation of a preventive maintenance frequency for the resistor.

A search of Licensee Event Reports, Operating Experience and Deviation Reports was performed and there were no previous occurrences of RCIC overspeed events due to a resistor failure.

This trip occurred while the RCIC system was in a planned Limiting Condition for Operation maintenance activity and the system was returned to an operable condition within the allowed outage time. In addition, the High Pressure Coolant Injection system was available during this event. Therefore, there was no impact with respect to safety of the plant.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev. 2.0

FACILITY NAME (1) Quad Cities Unit Two	DOCKET NUMBER (2) 0 5 0 0 0 2 6 5	LER NUMBER (6)			PAGE (3) 2 of 0 4
		Year	Sequential Number	Revision Number	
		1999	0 0 3	0 0	
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: Reactor Core Isolation Cooling Over speed Trip due to a Failed Governor Control Power Resistor

A. CONDITIONS PRIOR TO EVENT:

Unit:	Two	Event Date:	08251999	Event Time:	1015
Reactor Mode	One	Mode Name:	Run	Power Level:	100%

This report was initiated by Licensee Event Report 265/99-003.

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

B. DESCRIPTION OF EVENT:

On August 25, 1999, the Unit Two Reactor Core Isolation Cooling system (RCIC) [BN] was being functionally tested using QCOS 1300-05, "Quarterly RCIC Pump Operability Test," following maintenance and surveillance activities. At 10:15 a.m., the RCIC turbine tripped on overspeed immediately after the opening of the steam inlet valve, MO 2-1301-61. RCIC had not yet been declared operable, and thus remained in the Limiting Condition of Operation (LCO).

A review of work performed during this work window was performed by Engineering and Instrument Maintenance Supervisory personnel. The only work related to the RCIC speed control system was the replacement of two power supplies (2-1340-4 and 12). The 2-1340-12 power supply is the turbine test circuit power supply and is separated from the governor controls by a set of normally open contacts. The 2-1340-4 power system is the normal speed control power supply and was de-energized in accordance with an out-of-service order, by pulling two fuses (13A-F7 & F8). These fuses supply 125 vdc power to the governor controls. Engineering personnel reviewed the system logic and the work performed, and concluded that there was no other work performed that could have caused a failure of the speed control circuitry.

On August 26, 1999, while investigative testing was being performed, the power input resistor [JX] to the Woodward governor controls was found with zero output voltage.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION											Form Rev. 2.0							
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	Quad Cities Unit Two	0	5	0	0	0	2	6	5	1999	0	0	3	0	0	3	of	0
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]																		

The absence of resistor output voltage resulted in no input voltage to the governor EGM control box, which prevented governor valve movement. Turbine speed could not be throttled using the governor valve, and RCIC subsequently tripped on overspeed during performance of QCOS 1300-05, "Quarterly RCIC Pump Operability Test." This resistor failure would have caused an overspeed trip of RCIC on all demand and control scenarios.

The circuitry involving the resistor is checked via maintenance procedure QCIPM 1300-04, "RCIC Woodward Governor EGM Control Box and Ramp Generator/ Signal Converter (RG/SC) Bench Calibration," once per refuel outage. This was last performed on April 11, 1997. The previous RCIC functional surveillance which fully tested this resistor was successfully completed on June 2, 1999.

C. CAUSE OF THE EVENT:

Subsequent investigation and analysis showed that the overspeed trip was caused by failure of the 125 vdc governor power supply resistor [JX] (NRC cause code [X] other). Testing and analysis was performed by ComEd's Component Testing Lab and the original equipment manufacturer, Pacific Resistor Company. The failure of the resistor was an actual open of the coil, due to a combination of aging and a power surge.

Based on these tests, it was concluded that the resistor most likely failed when the 125 vdc power supply fuses were reinstalled during return-to-service activities on August 24, 1999. This would induce a normal power surge as the resistor and downstream components were re-energized.

The subject resistor was replaced on August 26, 1999. After replacement, the governor circuitry was successfully tested and RCIC was declared operable.

D. SAFETY ANALYSIS:

RCIC is not an Engineered Safety Feature or Emergency Core Cooling System. RCIC is not designed to maintain adequate core cooling for the spectrum of line break accidents or required to mitigate the consequences of an accident; additionally, RCIC is not required or relied upon to remove residual heat following an accident.

The High Pressure Coolant Injection (HPCI) [BJ] system was available during this event and was capable of performing the design function of RCIC during a transient in which the reactor has achieved a hot shutdown condition (MODE 3).

Therefore, this event did not result in adverse safety consequences.

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	1999	
TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]					

E. CORRECTIVE ACTIONS:

Corrective Actions Completed:

The failed RCIC governor control power resistor was replaced on Unit 2 on August 26, 1999.

The RCIC governor control power resistor on Unit 1 was replaced on October 16, 1999.

A maintenance activity has been created to replace the RCIC governor control power resistors at a predefined frequency.

F. PREVIOUS OCCURRENCES:

A search of Licensee Event Reports, Deviation Reports and Operating Experience Reports was performed and there were no previous occurrences of RCIC overspeed events due to resistor problems.

G. COMPONENT FAILURE DATA:

The power supply resistor for the RCIC turbine governor is a 200 ohm, 70 watt resistor manufactured by Pacific Resistor Company.

An Equipment Performance and Information Exchange (EPIX) failure report for this occurrence was issued.