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Quad Cities Generating Station
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May 2, 2000

SVP-00-085

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

Quad Cities Nuclear Power Station, Unit 1
Facility Operating License No. DPR-29
NRC Docket No. 50-254

Subject: High Pressure Coolant Injection Subsystem Auxiliary Oil Pump Failure
to Continue Running

Enclosed is Licensee Event Report (LER) 254/00-03, Revision 01, 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.

We are committing to the following actions:

A one time mid-quarter test will be performed of the Unit 1 Auxiliary Oil
Pump auto-start circuit measuring the pressure at Pressure Switch (PS) #4
to verify that the pressure at PS #4 stays below 58 psig and that the
setpoint of Pressure Regulating Valve (PRV) #3 has not drifted.

QCOS 2300-05 will be revised to require installation of a temporary
pressure gauge to monitor the pressure at PS #4 for each quarterly
operability run to verify that the pressure stays below 58 psig and that PRV
#3 has not drifted. This procedure will be performed this way on both Unit 1
and Unit 2 until a design change is installed.

A design change will be installed on Unit 1 and Unit 2 to include a seal-in
(time or speed dependant) for the High Pressure Coolant Injection System
AOP.

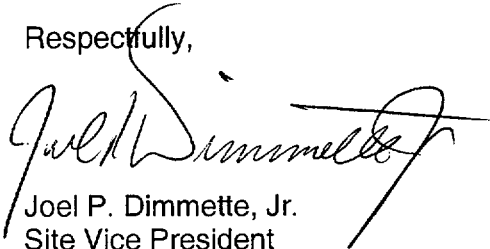
Any other actions described in the submittal represent intended or planned actions by
Commonwealth Edison (ComEd) Company. They are described for the NRC's
information and are not regulatory commitments.

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

Respectfully,

A handwritten signature in black ink, appearing to read "Joel P. Dimmette, Jr.", with a stylized flourish extending from the end of the signature.

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

LICENSEE EVENT REPORT (LER)																									Form Rev. 2.0				
Facility Name (1) Quad Cities Unit 1															Docket Number (2) 0 5 0 0 0 2 5 4										Page (3) 1 of 0 4				
Title (4) Unit 1 High Pressure Coolant Injection Subsystem Auxiliary Oil Pump Failure to Continue Running on an Auto-Initiation Signal during Logic Functional Test																													
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	2	1	2000	2000	0	0	3	0	1	0	5	0	2	2000		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	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												
					20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)				Abstract below and												
					20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(viii)(B)				in Text												
					20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)																
LICENSEE CONTACT FOR THIS LER (12)																													
Name															TELEPHONE NUMBER														
Charles Peterson, Regulatory Affairs Manager, ext. 3609															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										
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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 March 21, 2000 at 1758 hours the Unit 1 High Pressure Coolant Injection (HPCI) Auxiliary Oil Pump (AOP) failed to continuously operate when initiated as a part of QCOS 2300-29, "HPCI System Logic Functional Test." The AOP was observed to cycle on and off about every 3 seconds for approximately 10 minutes when given an auto-start signal as a part of the surveillance test.

The logic test was stopped and an adjustment was made to the oil Pressure Regulating Valve 1-2399-PRV3 (PRV #3). The valve was adjusted to maintain a slightly lower pressure. Two more tests of the auto-initiation logic of Unit 1 HPCI were performed and on each of these occasions the AOP started and continued to run, normally.

The logic testing was completed with satisfactory results.

The root cause of this event was inadequate design margin between the AOP trip setpoint and the control oil header pressure maintained by the setpoint of PRV #3.

The safety significance of this event was minimal. The Automatic Depressurization System and Low Pressure Emergency Systems were operable during this event.

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 1	0	5	0	0	0	2	5	4	2000		0	0	3		0	1	2	of	0	4
TEXT Energy Industry Identification System (EIIIS) 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 High Pressure Coolant Injection Subsystem Auxiliary Oil Pump Failure to Continue Running on an Auto-Initiation Signal during Logic Functional Test

A. CONDITIONS PRIOR TO EVENT:

Unit:	1	Event Date:	March 21, 2000	Event Time:	1758 hours
Reactor Mode:	1	Mode Name:	Power Operation	Power Level:	100%

This report was initiated by Licensee Event Report (LER) 254/00-003

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

B. DESCRIPTION OF EVENT:

This LER is being submitted in accordance with 10 CFR 50.73 (a)(2)(v)(D), which requires the reporting of any event or condition that alone could have prevented the fulfillment of a safety function of structures or systems that are needed to mitigate the consequences of an accident.

On March 21, 2000, at 1758 hours, the Unit 1 High Pressure Coolant Injection (HPCI) system [BJ] Auxiliary Oil Pump (AOP) failed to continuously operate when initiated as a part of QCOS 2300-29 "HPCI System Logic Functional Test." This failure resulted in the failure of the HPCI System to auto-start. The AOP was observed to start and stop numerous times, on a frequency of about every three seconds, when given an auto-start signal as a part of the Logic Functional Test. After several minutes, the AOP control switch was taken to manual to maintain the pump in a running condition. The logic test was stopped and a Problem Identification Form was initiated.

An operator was dispatched to the Unit One HPCI room to check the AOP motor for excessive temperature or other abnormalities. The temperature of the AOP motor and the HPCI Emergency Oil Pump motor were found to be approximately the same temperature and no damage was noted.

A Nuclear Work Request was written to adjust oil Pressure Regulating Valve 1-2399-PRV3 (PRV #3) [PCV]. The valve was adjusted, about 4 psig, to maintain a lower pressure and the auto-initiation signal was inserted again. Following this adjustment the AOP was observed to cycle on then off and then back on once. Since this cycling did not affect the HPCI logic test the testing was completed.

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Quad Cities Unit 1	0	5	0	0	0	2	5	4	2000		0	0	3		0	1	3	of	0	4
TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]																				

After completion of the logic test, two more tests of the auto-initiation of Unit 1 HPCI were performed and on each of these occasions the AOP started and continued to run satisfactorily. The pressure at the AOP trip switch was measured during these subsequent tests and the oil system pressure was found to have about 2.5 psig margin to the trip setpoint following the PRV #3 setpoint adjustment.

An Engineering Operational Problem Response (EOPR) was written to evaluate this event and provide information to support operations decision process concerning operability. The EOPR recommended that the Unit 1 HPCI subsystem be returned to operable status based on the PRV #3 adjustment that had been made and on the subsequent successful testing. Operations declared the Unit 1 HPCI subsystem operable at 1850 hours on March 23, 2000.

The AOP high pressure trip switch is only in the circuit when the AOP is auto-started. Therefore, this function does not get tested during the quarterly test, but only during the once-per-cycle cold-start test and logic test.

C. CAUSE OF THE EVENT:

The root cause of this event was inadequate design margin between the AOP high pressure trip setpoint and the control oil header pressure maintained by the setpoint of PRV #3. This inadequate window of acceptable control oil header pressure allowed a small setpoint drift of PRV #3 to cause the AOP to trip and restart continuously when given an auto-initiation signal.

D. SAFETY ANALYSIS:

During this event the Automatic Depressurization system and the Low Pressure Emergency Cooling Systems were operable. Therefore, the safety significance of this event was minimal.

E. CORRECTIVE ACTIONS:

Corrective Actions Completed:

1. PRV #3 setpoint was adjusted to 49 psig per the vendor manual with only the AOP operating.
2. The calibration setpoint of the AOP high oil pressure trip pressure switch (PS #4) was checked and found to be within allowable tolerances.
3. The calibration of the oil pressure gauge (PG #5) was checked and found to be within allowable tolerances.

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Quad Cities Unit 1	0	5	0	0	0	2	5	4	2000		0	0	3		0	1	4	of	0	4
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]																				

Corrective Action to be Completed:

1. A one time mid-quarter test will be performed of the Unit 1 AOP auto-start circuit measuring the pressure at PS #4 to verify that the pressure at PS #4 stays below 58 psig and that the setpoint of PRV #3 has not drifted.
2. QCOS 2300-05 will be revised to require installation of a temporary pressure gauge to monitor the pressure at PS #4 for each quarterly operability run to verify that the pressure stays below 58 psig and that PRV #3 has not drifted. This procedure will be performed this way on both Unit 1 and Unit 2 until the design change, discussed below, is installed.
3. A design change will be prepared and installed on Unit 1 and Unit 2 to include a seal-in (time or speed dependant) for the HPCI AOP.

F. PREVIOUS OCCURRENCES:

One previous event of this type on Unit 1 was identified. This event is documented in LER 1-96-004.

The causes of this previous event are as follows:

1. PRV #3 was found to be set significantly above the acceptable range (58 psig vs. 50 +/- 2 psig).
2. PS #4 was found to be set at the low end of it's acceptable range (58 psig vs. 60 +/- 2 psig).
3. PI 1-2341-5 (PG #5) which is used to set PRV #3 was found to be reading 4 psig lower than actual.

The corrective actions for this previous event included:

1. Re-calibration of PS #4 to the correct setpoint.
2. Resetting of PRV #3 to the correct setpoint
3. Completion of predefines for adjusting both units' HPCI oil regulating valves.

The small acceptable window for the control oil header pressure was not recognized as a problem during this previous event because:

1. PRV #3 was set significantly higher than normal
2. PG #5 was significantly out of tolerance
3. The setpoint of PRV #3 had not been verified for 8 years.

Therefore no corrective actions were taken to increase or eliminate this small control oil header pressure window and for this reason the corrective actions for this previous event were not effective in preventing the current event.

G. COMPONENT FAILURE DATA:

The Auxiliary Oil Pump is a Worthington pump, model 2-CCNEJ-72, with a General Electric type CD motor.