NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Quad-Cities Nuclear Power Station, Unit 1	0 5 0 0 0 2 5 4	1 OF 0 3

TITLE (4)

Unit 1 Shutdown Due to Inoperable HPCI System & Safety Relief Valve Failure

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	0 5	8 4	8 4	0 0 1	0 0	0 3	2 6	8 4	None	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 8 8	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 in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 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	TELEPHONE NUMBER
	AREA CODE
J. Carney	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 J	P	B 5 8 0	Y							
X	S B	P C V	D 2 4 5	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)

A Reactor shutdown was initiated on March 5, 1984, due to the occurrence of two unrelated events. During the performance of QOS 2300-2, High Pressure Coolant Injection (HPCI) Pump Operability, the pump lubricating oil was found to be contaminated with water. The surveillance was completed successfully but HPCI was declared inoperable due to the contaminated oil. While testing redundant safety systems, as required by Technical Specifications, Electromatic Relief Valve 1-203-3E failed to open when given a manual signal. The Reactor was, therefore, shutdown in accordance with Technical Specification 3.5.C.3. Although it had been declared inoperable, the HPCI System was still capable of performing its intended function. Also, the four remaining relief valves operated properly and provided sufficient capacity to fulfill Automatic Depressurization System requirements.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Event Description

On March 5, 1984, at 0300 hours, Unit One was in the RUN mode at 88 percent power. After the successful completion of QOS 2300-2, High Pressure Coolant Injection (HPCI) Pump Operability Monthly Surveillance, a visual inspection of the HPCI pump was performed. The color of the lubricating oil indicated that water may be present in the oil system. The HPCI System was declared inoperable at 0520 hours due to the water leak. Work Requests Q32776 and Q32777 were written to investigate and repair the problem. The necessary surveillances of the Automatic Pressure Relief, Core Spray, Low Pressure Coolant Injection, and Reactor Core Isolation Cooling Systems were immediately initiated as required by Technical Specification 3.5.C.2.

During the performance of QOS 201-1, Automatic Pressure Relief System Manual Operation of Relief Valves, Electromatic Relief Valve 1-203-3E failed to open. The closed indication was lost but no open indication or alarms occurred. The valve was taken out of service and Work Request Q32815 was written to investigate the problem.

Since the HPCI System was declared inoperable and one Electromatic Relief Valve was taken out of service, the requirements of Technical Specification 3.5.C.2 could not be met. Thus, an orderly shutdown was initiated and Unit One was manually scrammed at 0206 hours on March 6, 1984. The Reactor pressure was brought to less than 90 psig by 0450 hours, thus satisfying Technical Specification 3.5.C.3.

The safety implications of this event are minimal since the HPCI System would have been capable of performing its intended function and the remaining four relief valves were tested satisfactorily and would have fulfilled the Automatic Depressurization System function.

Cause

The presence of water in the HPCI pump oil system was determined to originate from a leak in the pump's oil cooler system which allowed water to seep into the lubricating oil system of the pump. The water leaking into the system filled the oil sump and bearing housing to capacity causing the fluid to leak out of the bearing housing. The HPCI pump is a type DVMX, dual stage pump and is manufactured by the Byron Jackson Company.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Cause (continued)

The failure of the Electromatic Relief Valve, 1-203-3E, was traced to a coil in the valve controller having become disconnected. Further investigation revealed that the high vibration levels experienced by this valve during routine plant conditions caused the disconnection. The valve is a type 1525VS Relief Valve and is manufactured by Dresser Industries.

Corrective Action

The HPCI pump oil cooler O-rings and gaskets were replaced with new like-for-like replacement parts. The water side of the oil cooler was pressurized, and no leaks were found. The pump and cooler will be tested during the startup of Unit One. This is the first occurrence of this type for this pump.

The method of cable connections inside the controller for the 1-203-3E Relief Valve will be reviewed to assure a more positive means of connection in order to minimize any further effects of the local vibration levels. This valve will be tested prior to Reactor startup. The electrical connections for these valves will be inspected during each refueling outage. This inspection frequency is considered adequate to prevent the recurrence of a similar failure.

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NJK-84-105

March 26, 1984

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 Number (LER) 84-1 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)(i); the completion of a plant shutdown required by Technical Specifications.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

N. J. Kalivianakis
Station Superintendent

NJK:PDK/bb

Enclosure

cc B. Rybak
A. Morrongiello
INPO Records Center
NRC Region III

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