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 2	0 5 0 0 0 2 6 5	1 OF 0 3

TITLE (4)

Reactor Scram Due to Control Valve Fast Closure

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 1	2 5	8 5	8 5	0 0 1	0 0	0 2	2 8	8 5	NA	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
R		20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
0 7 7		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)	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
Fred Kaeppel	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	J J	F C V	G 0 8 4	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 January 25, 1985, at 1:29 a.m., Unit 2 was at an electrical load of 647 MWe and the weekly Turbine-Generator test, QOS 5600-4, was in progress. In this test, each of the four control valves is cycled one at a time to verify the operability of the control valves in the fast-close mode. Control Valve #1 through #3 operated properly, but when Control Valve #4 was tested the valve immediately fast-closed. The resulting pressure spike collapsed the voids in the Reactor vessel and a trip of the Reactor Protection System was received due to high neutron flux. It has been determined that a bushing of the actuating rod for the #4 Control Valve switch box had worn through, causing the rod to fall to the position that actuated the fast-closure switch when the valve was tested.

The Reactor Protection System functioned as designed. Therefore, the safety impact of this occurrence was minimal.

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

Event Description

On January 25, 1985, at 1:29 a.m., Unit 2 was in the RUN mode at a power level of 647 MWe. The weekly Turbine-Generator test, QOS 5600-4, was being performed on the Unit 2 Turbine Control Valves (JJ--Turbine Supervisory Control System). In the test, each of the four Control Valves is cycled one at a time. A properly functioning Control Valve will close slowly until it is 90% closed, and then fast-close the remaining 10%. This verifies that the fast-close mode of Control Valve operation is operable.

During the test, Control Valves #1, #2, and #3 closed properly. However, when Control Valve #4 was tested, it fast-closed all the way from its initial position of 30% open. This sudden Control Valve closure caused a Reactor pressure spike, resulting in high neutron flux, thereby causing a Reactor scram. Normal scram recovery followed.

A Turbine trip signal would have resulted in fast-closure of all four Control Valves. During the test, Control Valve #4 did indeed demonstrate its capability to fast-close. Therefore, the safety consequences of this event were minimal.

The reporting requirement for this Licensee Event Report is 10 CFR 50.73(a)(2)(iv).

Cause

The cause of this deviation was equipment failure. A bushing had worn through on the actuating rod for the Control Valve switch box. This allowed the actuating rod to fall to the position that actuated the fast-closure switch, causing the Control Valve to immediately fast-close when it was tested.

This failed actuating rod was supplied by General Electric Company.

Corrective Action

The actuating rod for the Control Valve switch box was replaced, allowing Control Valve #4 to function properly. The scram was investigated by the Scram Reduction Committee, a group formed at the Station to prevent repetitious scrams. Their investigation revealed that the actuating rod for one other Control Valve switch box on Unit 2 was worn excessively, and so it was replaced also. As a precaution,

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

Corrective Action (continued)

the remaining two actuating rods on Unit 2 were replaced, and during a subsequent Unit 1 outage all four actuating rods were replaced on Unit 1. To prevent recurrence of this event, these linkages have been added to the list of equipment to be inspected during refuel outages.

Control Valve fast-closures have caused Reactor scrams before at Quad-Cities Station. However, this is the first such occurrence due to a failure of the switch box actuating rod.

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NJK-85-57

February 22, 1985

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Reference: Quad-Cities Nuclear Power Station
Docket Number 50-265, DPR-30, Unit Two

Enclosed please find Licensee Event Report (LER) 85-001, 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)-(iv), which requires reporting of any event or condition that resulted in manual or automatic initiation of any Engineered Safety Feature.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

N. J. Kalivianakis
Station Superintendent

NJK:HQD/bb

Enclosure

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

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