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)

South Steam Jet Air Ejector Valves Incorrectly Installed

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	1 6	8 4	8 4	0 1 7	0 0	0 9	1 4	8 4	NA	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (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)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	X 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
Peter Todd, extension 193	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	

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 August 16, 1984, at 4:30 p.m., Unit One was in the STARTUP mode, at less than 1% core thermal power. The mechanical vacuum pump was turned on to draw initial vacuum on the main condenser. Since the vacuum pump kept tripping due to high temperature, and Steam Jet Air Ejector (SJAE) flow went to zero when condenser circulating water flow was in the north direction, but functioned properly with reversed condenser circulating water flow, it was suspected that the south SJAE suction valves 1-5401A and B were not operating properly. Subsequent inspections performed on the valves revealed that the disc of these two Butterfly valves were installed 90 degrees out of proper orientation. The valves were repaired and returned to service by 8:40 a.m. on August 17, 1984, and a Deviation Report was initiated.

IE22

1/1

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Quad-Cities Nuclear Power Station, Unit 1	0 5 0 0 0 2 5 4	8 4	— 0 1 7	— 0 0	0 2 OF 0 3

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

Event Description

On August 16, 1984, at 4:30 p.m., Unit One was in the STARTUP mode being returned to operation after the completion of its Cycle 7 Refueling Outage. The unit was at less than 1% core thermal power and the mechanical vacuum pump was on, drawing the initial vacuum on the main condenser. A short time after having started the mechanical vacuum pump, it tripped. Repeated attempts to restart the pump were unsuccessful, each time the pump would trip due to high temperature. This condition had occurred during past outages and was attributed to steam being removed from the condenser. This was believed to be the cause of the trips in this case, also. Therefore, condenser flow was reversed which alleviated the vacuum pump trips. Further investigation revealed the south Steam Jet Air Ejector (SJAE) suction valves, AO 1-5401A & B, were actually closed when they indicated open. This was verified when the SJAE's were in use and condenser flow was reversed. The SJAE flow went to zero, indicating no suction path. Power ascension was halted until repairs could be accomplished. At 9:50 p.m., these valves, which had recently been replaced by a modification, were taken out of service to be inspected. Upon removing the valve operators, visual examination verified that the valve discs had been installed 90 degrees out of proper orientation for these Butterfly valve operators. Actual valve position was exactly opposite of the indicated position in the Control Room. The valves were repaired and returned to service by 8:40 a.m. on August 17, 1984, and a Deviation Report was initiated.

During the course of the investigation for this deviation, it was recognized that had a Main Steam Line High Radiation signal been initiated during the time the mechanical vacuum pump was running, the pump would have tripped but would not be automatically isolated by the SJAE valve closure. The two faulty valves would have actually opened when given the CLOSE isolation signal. This is contrary to Technical Specification 3.8.C.1, and on September 7, 1984, the Deviation Report was upgraded to a Licensee Event Report.

The probability of an actual release occurring due to this event was very small and highly unlikely. The mechanical vacuum pump is normally in a STANDBY mode, manually isolated. The length of time the pump was not isolated during this event was approximately 90 minutes. This short time duration, combined with the very low powers encountered during startup operations, minimize the consequences of this event.

This event is being reported as required by the Code of Federal Regulations, 10 CFR 50.73(a)(2)(vii)(C).

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Quad-Cities Nuclear Power Station, Unit 1	0 5 0 0 0 2 5 4	8 4	— 0 1 7	— 0 0	0 3 OF 0 3

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

Cause

The root cause of this deviation was insufficient information. The disc/operator orientation was not set correctly when the valves were installed via a recent modification. The new valve operator is designed such that it can be keyed for a fail-open or fail-close condition. At the time of installation, this was not recognized. Since disc/operator orientation can only be determined prior to complete valve/operator assembly, subsequent testing at other than operating conditions did not reveal the mis-orientation condition.

Corrective Action

The immediate corrective action taken was to repair the 1-5401A & B valves by rotating the discs 90 degrees and reinstalling the operator. The work was performed under Work Request Q36989 and was completed approximately 17 hours from the time the problem was discovered.

Details of this occurrence will be discussed with all personnel involved, and with all Technical Staff Engineers to re-emphasize the need for a thorough Modification Test in future modification packages. A Maintenance Procedure describing proper method of assembling and installing Butterfly valve operators will be implemented by January 1, 1985. This procedure will specifically address valve/operator orientation methods for installation of newly designed Butterfly valve operators. Also, Licensee Event Reporting criteria will be reviewed by key personnel to ensure that future occurrences can be correctly identified and promptly reported.

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

NJK-84-279

September 14, 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 84-017 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)-(vii)(C), which requires the reporting of any event where a single cause or condition caused at least one independent train or channel to become inoperable in a system designed to control the release of radioactive material.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

N. J. Kalivianakis
Station Superintendent

NJK:DBC/bb

Enclosure

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

IE22
1/1