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)
'B' Train Standby Gas Treatment System Auto-Start

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 9	8 5	8 5	-	0 1 3	-	0 0	0 4	1 9	8 5	NA	0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	4
POWER LEVEL (10)	1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check one or more of the following)* (11)

	20.402(b)		20.405(c)	X	50.73(a)(2)(iv)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)
	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)

	73.71(b)
	73.71(c)
	OTHER *(Specify in Abstract below and in Text, NRC Form 366A)*

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Randall D. Buss, Technical Staff Engineer	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 H	R L Y	G 0 8 0	Y							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES *(If yes, complete EXPECTED SUBMISSION DATE)*	NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines)* (16)

On March 29, 1985, Unit One was operating at 100 percent of rated core thermal power. At 1850 hours, the 'B' Standby Gas Treatment System (SBGTS) (BH) automatically started without any apparent start signal. At 1903 hours, the Reactor Building Ventilation System (VA) and the Control Room Ventilation System (VI) tripped. It was discovered that relay (RLY) 2-1701-100B had burnt its coil. It was determined that this relay had reached its end of life and the relay was replaced. At 2222 hours the 'B' SBGTS was started to demonstrate its operability.

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

Event Description

On March 29, 1985, at 6:50 p.m., the 1/2 'B' Train of the Standby Gas Treatment System (BH) automatically started without any apparent start signal. The 1/2 'B' Train selector switch was in the STANDBY position, therefore, the 'A' Train, which was selected as primary, would have started for a valid initiation signal. The Unit 1 and Unit 2 Reactor Building Ventilation Systems (VA) and the Control Room Ventilation System (VI) did not trip at this time. At the time of this event, Unit 1 was in the RUN mode at 100 percent power and Unit 2 was in the REFUEL mode at 0 percent power with the core unloaded.

At 7:03 p.m. the Reactor Building and Control Room Ventilation Systems tripped with no associated alarms except those indicating the systems had tripped. At 7:20 p.m. the Shift Foreman found Relay (RLY) 2-1701-100B in Panel 902-41 was burnt. This panel contains relays for the automatic start of the 1/2 'B' Standby Gas Treatment System and isolation of the Reactor Building and Control Room Ventilation Systems. A Work Request was initiated to replace the relay. At 8:17 p.m. the 1/2 'B' Standby Gas Treatment System was turned off to test whether the 1/2 'A' Train would automatically start. It did not, demonstrating that there was no valid auto-start signal present and the burnt relay caused the auto-start. The 1/2 'A' Train was then started manually. The 1/2 'B' Train was then put into primary and it restarted automatically as expected.

At 8:50 p.m. the relay was taken out of service to replace the relay. At 9:45 p.m. the 1/2 'B' Train was turned off and at 10:05 p.m. the relay was returned to service. At 10:10 p.m. the auto-start function of the 1/2 'B' Train was successfully tested by tripping the 2A Fuel Pool Radiation Monitor (IL). At 10:20 p.m. the 1/2 'A' Train was turned off and the Unit 1 and Unit 2 Reactor Building Ventilation Systems restarted. At 10:22 p.m. the 1/2 'B' Train was restarted to perform an operability test of the Train using procedure QOS 7500-5, Standby Gas Treatment System Monthly Operability Test. On March 30, 1985, at 8:30 a.m. the operability test was completed and the 1/2 'B' Train was shut off and placed in the primary position. At 12:05 p.m. the 1/2 'B' Train was restarted and left running until 3:10 p.m., then it was shut off in order to perform a maintenance/modification test procedure. This test procedure performed by Electrical Maintenance verified the operability of the relay and its associated circuits. The test ensured that the correct relay circuits of the 1/2 'B' Train auto-start function would perform as designed.

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

Event Description (continued)

The relay failed in a safe direction in that it caused the Standby Gas Treatment System to start. The 1/2 'B' Train remained operable and both Trains were running while the relay was being replaced. Because the 1/2 'A' Train was in the primary position at the start of this event, if a valid signal was received it would auto-start and trip the Reactor Building and Control Room Ventilation Systems. Therefore, the effects of this event on safe plant operation and public safety were minimized.

This report is being submitted as required by the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(iv).

Cause

The root cause of this event was a failed relay attributable to the relay electrical coil (CL) reaching its end of life. The coil failed, de-energizing the relay. Because the 1/2 'B' Train was selected as the secondary, it delayed for 25 seconds to allow the 1/2 'A' Train to start, which did not because there was no valid initiation signal. Then the 1/2 'B' Train started. It is believed, but cannot be determined, that the ventilation isolation circuits of the relay remained energized temporarily, until the complete failure of the relay. The relay is a General Electric CR120A relay and the coil that failed is part number 551G022.

Corrective Action

The immediate corrective action was to replace the failed relay coil with a like-for-like coil. There has been no previous failure of this relay resulting in Standby Gas Treatment auto-initiation but the CR120A type relay has failed on numerous occasions. Modification M-4-1(2)-85-17 had been initiated previously to replace all of the CR120A relays in control Panels 902-40 and 41 (and 901-40 and 41) with CR120B relays. Therefore, once the modifications are complete, the likelihood of this event reoccurring should be diminished. Also, a procedure change request was initiated to QOA 7500-1, Standby Gas Treatment Automatic Start, to provide for verifying the automatic ventilation isolation as an immediate operator action.

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NJK-85-114

April 19, 1985

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 (LER) 85-013, 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 any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

N. J. Kalivianakis
Station Manager

NJK:BRS/bb

Enclosure

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

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