LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
QUAD-CITIES NUCLEAR POWER STATION, UNIT ONE	0 5 0 0 0 2 5 4	1 of 0 3

Title (4) Group I Isolation in Startup/Hot Standby Mode Caused by Reactor Mode Switch Rotational Play

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)
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0 4	0 8	8 8	8 8	0 0 8	0 1	0 8	2 9	8 8		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
3	___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)	
POWER LEVEL (10) 0 0 2	___ 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)	
	___ 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
Dennis Dolecheck, Technical Staff Engineer Ext. 2190	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
B	J C	H S	G 0 8 0	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 April 8, 1988, Quad Cities Unit One was in the STARTUP/HOT STANDBY mode at approximately two (2) percent thermal power. At 1800 hours, a Group I isolation (and Channel A 1/2 scram) occurred as reactor pressure was decreasing (at about 840 psig). This was caused by bypass relays that did not energize because of rotational play in the mode switch when the mode switch was placed from RUN to STARTUP/HOT STANDBY at 1615 hours. This failure to energize resulted in protective actions normally bypassed in STARTUP/HOT STANDBY to actually be in effect. NRC notification was completed at 1840 hours to comply with 10CFR50.72.

To correct this failure, the mode switch was moved toward the REFUEL position and then back to STARTUP/HOT STANDBY. This corrected the problem identified. Temporary procedures are administratively controlling the movement of the mode switch and verification of appropriate relay position. This will remain in place until the mode switch can be replaced (per modification M4-1(2)-86-26). This report is provided per 10CFR50.73(a)(2)(iv).

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PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power. Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION: Group I Isolation in STARTUP/HOT STANDBY due to contacts not closing on reactor mode switch caused by rotational play.

A. CONDITIONS PRIOR TO EVENT:

Unit: One | Event Date: April 8, 1988 | Event Time: 1800
Reactor Mode: 3 | Mode Name: Startup/Hot Standby | Power Level: 2%

This report was initiated by Deviation Report D-4-1-88-26

Startup/Hot Standby Mode (3): In this position, the reactor protection scram trips, initiated by condenser low vacuum and main steamline isolation valve closure are bypassed, the low pressure main steamline isolation valve closure trip is bypassed and the reactor protection system is energized, with IRM and APRM neutron monitoring system trips and control rod withdrawal interlocks in service.

B. DESCRIPTION OF EVENT:

On April 8, 1988, Quad Cities Unit One was in the STARTUP/HOT STANDBY mode at approximately two (2) percent thermal power. At 1615 hours, the reactor mode switch [HS] had been moved from RUN to STARTUP/HOT STANDBY as required by station procedure QGP 2-4 (Shutdown From Power Operation to a Standby Hot Pressurized Condition). At 1800 hours, as the shutdown continued (due to a problem with the Electro Hydraulic Control system [JJ]), a Group I isolation [JE] and an "A" channel reactor half scram [JC] occurred. This Engineered Safety Feature (ESF) actuation occurred as reactor pressure was being decreased (approximately 840 psig) per procedure QGP 2-4. This low reactor pressure ESF actuation is enabled only in the RUN mode. Therefore, the Group I isolation trip and the "A" reactor scram trip should have been bypassed when the mode switch was placed in the STARTUP/HOT STANDBY mode. The Shift Control Room Engineer (SCRE) and the Unit One Nuclear Station Operator (NSO) exercised the mode switch to the REFUEL mode (past STARTUP/HOT STANDBY) and back to the STARTUP/HOT STANDBY mode. The Group I isolation and the reactor half scram then reset and cleared. A Group I isolation closes the four inboard Main Steam Isolation Valves (1-AO-203-1A, 1B, 1C, 1D) [SB, ISV] , and the four outboard Main Steam Isolation Valves (1-AO-203-2A, 2B, 2C, 2D), the inboard Main Steam Drain Isolation Valve (1-MO-220-1) [SB, 20], the outboard Main Steam Drain Isolation Valve (1-MO-220-2), the inboard Recirculation Sample Valve (1-AO-220-44) [AD, SMV], and the outboard Recirculation Sample Valve (1-AO-220-45). A reactor half scram is a signal indicating that one channel of the reactor protection system (RPS) has tripped.

NRC notification of this event was completed at 1850 hours to comply with the requirements of 10CFR50.72.

C. APPARENT CAUSE OF EVENT:

This report is being supplied to comply with the reporting requirements of 10CFR50.73(a)(2)(iv), any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF). The Group I isolation is considered an ESF actuation.

The cause of this event was due to rotational "play" in the mode switch. When the reactor mode switch was rotated from RUN mode to STARTUP/HOT STANDBY mode, certain contacts did not fully close. With the contacts still open some of the reactor protection system bypass relays [RLY] (1-590-112A, 112C), and some of the Group I isolation bypass relays (1-595-106A, 106C) did not energize. The presence of low steam pressure, and the bypass relays being de-energized, caused the Group I isolation. The resultant MSIV closure caused the channel "A" reactor half scram to occur, as designed. However, the channel "B" half scram did not occur because the associated bypass contacts had closed. Technical Specification Table 3.2-1 states the instrumentation need not trip until 825 pounds per square inch gauge (PSIG) but due to the conservative setting of instruments, the trip was actuated at approximately 840 PSIG.

D. SAFETY ANALYSIS OF EVENT:

The safety consequences of this event are minimal. When the contacts did not close on the mode switch, the protection systems that should have been bypassed were not. This caused the system to react in a conservative manner, actuating the Group I isolation and the reactor half scram.

E. CORRECTIVE ACTIONS:

The NRC Regional Office was informed of this situation and a test was developed that is documented on Work Request Q65724. The Electrical Maintenance Department verified that when moving the mode switch from RUN mode to STARTUP/HOT STANDBY mode that if the mode switch handle was turned slightly past the STARTUP/HOT STANDBY position, toward the REFUEL position and then back to the STARTUP/HOT STANDBY position all the contacts would operate properly. Temporary procedure 5441 (QGP 2-1, Normal Unit Shutdown) and 5442 (QGP 2-4) were initiated April 9, 1988 to administratively control the movement of the mode switch and verify appropriate relay position. These changes will be permanently implemented until the mode switch can be replaced.

The BWR Owners Group has contracted General Electric to design and qualify a modified SB-9 mode switch to replace the existing mode switch. Due to the long lead time associated with procurement, installation of the modified SB-9 mode switch was initially scheduled for the 1989 refuel outage. However, it is now apparent that this schedule cannot be met, and so the mode switch replacement will be completed per modification M-4-1(2)-86-026 when the replacement mode switch is available from General Electric (Nuclear Tracking System: Unit One - 2542008802601; Unit Two - 2542008802602).

F. PREVIOUS EVENTS:

There have been no documented similar events at Quad Cities Station since implementation of 10 CFR 50.73 reporting requirements.

A Nuclear Plant Reliability Data System (NPRDS) contained one similar event. The corrective action was to replace a pressure pin that had dropped through causing the leaf spring not to apply enough pressure to close the contacts. The Electrical Maintenance Department has reviewed the event and indicates that it is unrelated.

G. COMPONENT FAILURE DATA:

The reactor mode switch is a product of the General Electric Company model number SB-1.

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RLB-88-292

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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 is Licensee Event Report (LER) 88-008, Revision 01, for Quad-Cities Nuclear Power Station. This revision provides an update of the revised schedule of corrective actions.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(iv), which requires the reporting of 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

R. A. Robey for
R. L. Bax
Station Manager

RLB/DWH/ad

Enclosure

cc: I. Johnson
R. Higgins
INPO Records Center
NRC Region III

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