

LICENSEE EVENT REPORT (LER)

Facility Name (1) QUAD-CITIES NUCLEAR POWER STATION, UNIT TWO Docket Number (2) 0 | 5 | 0 | 0 | 0 | 2 | 6 | 5 | 1 | of | 0 | 4 Page (3)

Title (4) HIGH PRESSURE COOLANT INJECTION DURING AUTO-INITIATION TEST DUE TO PERSONNEL ERROR

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)
11	03	87	87	---	0 1 7	---	0 0	11 18 87		0 5 0 0 0 1 1 0 5 0 0 0 1 1

OPERATING MODE (9) 4

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

20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	Other (Specify in Abstract below and in Text)
20.405(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name: K. J. HILL, TECHNICAL STAFF ENGINEER, EXT. 2150

TELEPHONE NUMBER: AREA CODE 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)

Yes (If yes, complete EXPECTED SUBMISSION DATE) NO

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

On November 3, 1987, Quad Cities Unit Two was in the RUN mode at 41 percent reactor thermal power. At 1908 hours, while performing QOS 2300-13 (High Pressure Coolant Injection [HPCI] System Hot Fast Initiation), an inadvertent injection of the HPCI system into the reactor vessel occurred. Reactor water level increased approximately two inches, but no other reactor parameter changes were observed. NRC notification of this event was completed at 2210 hours to satisfy the requirements of 10CFR50.72.

The cause of this event was personnel error. Finger blocks (which had been installed to prevent HPCI injection) were installed on the incorrect HFA relay contacts. The contacts were identified as being numbered left to right when actually the contacts were numbered right to left. Corrective action for this event includes counseling of the individual involved, development of an attachment to QAP 300-12 (System Temporary Alterations) to provide a reference for relay numbering conventions, and a revision to QOS 2300-13 to require verification of the block placements. This report is provided per 10CFR50.73(a)(2)(iv).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			Page (3)		
		Year	Sequential Number	Revision Number			
d Cities Unit Two	0 5 0 0 0 2 6 5	8 7	- 0 1 7	- 0 0	0 2	OF	0 4

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: HPCI Injection During Auto-Initiation Test Due to Personnel Error.

A. CONDITIONS PRIOR TO EVENT:

Unit: Two Event Date: November 3, 1987 Event Time: 1908
 Reactor Mode: 4 Mode Name: Run Power Level: 41%

This report was initiated by Deviation Report D-4-2-87-059

RUN Mode(4) - In this position the reactor system pressure is at or above 825 psig, and the reactor protection system is energized, with APRM protection and RBM interlocks in service (excluding the 15% high flux scram).

B. DESCRIPTION OF EVENT:

At 1908 hours on November 3, 1987, Unit Two was operating in the RUN mode at approximately 41 percent reactor thermal power. The Operating Department was in the process of performing QOS 2300-13, High Pressure Coolant Injection (HPCI) [BJ] System Hot Fast Initiation, on the Unit Two HPCI System.

This procedure requires the Nuclear Station Operator (NSO) to first manually start the HPCI turbine [TRB] and bring the system to full pump [P] flow with the pump taking a suction from the Contaminated Condensate Storage Tank (CCST) [TK] and discharging through the test return line back to the CCST. At this point, finger blocks [BLK] are placed on certain contacts of the auto-initiation relays [RLY] to prevent the HPCI injection valve [INV] MO-2301-8 from opening and the test return valves [TV] MO-2301-10 and MO-2301-15 from closing upon auto-initiation. After the blocks are installed, the HPCI turbine is manually shutdown and put on turning gear [GR]. With the HPCI flow controller [FIC] in AUTO and set at full pump flow (5600 gpm) the HPCI turbine is taken off turning gear and then the HPCI manual initiation pushbutton at control room panel [PL] 902-4 is depressed. This test simulates auto-initiation of the HPCI turbine so that proper system response can be verified.

Prior to the test the Operating Engineer (OE) obtained the necessary finger blocks from the Shift Engineer by using QAP 300-S4, Logic/Mod Test Jumper and Block Issue Record. The OE observed the NSO as the system was manually started, then proceeded to panel 902-39 in the auxiliary electric room which contains the HPCI system relays. The OE located the relays to be blocked and found all of them to be HFA type relays. The contacts of the HFA relays are numbered from right to left when looking at the face of the relay although there is no labeling on the face of the relay identifying them as such. The contacts are numbered on the back of the relay.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			Page (3)		
		Year	Sequential Number	Revision Number			
d Cities Unit Two	0 5 0 0 0 2 6 5	8 7	-	0 1 7	-	0 0	0 3 GF 0 4

The OE checked the back of the HFA relays in the adjacent cabinet and found the contacts numbered from left to right. However, he failed to reverse the order when looking at the face of the relay and therefore misplaced the finger blocks. The OE then returned to the control room and observed the NSO as he prepared for the auto-initiation test. Upon pressing the manual initiation pushbutton, the OE noticed valve MO-2301-8 going OPEN. The OE immediately began closing valve MO-2301-8 and the NSO tripped the turbine, but the OE observed the check valve on the injection line to open for approximately two seconds. Therefore, the HPCI system had injected into the vessel. Reactor water level increased slightly (approximately two inches), but immediately returned to normal. There was no other noted affect on reactor operation. The Shift Engineer and Operating Engineer went to the auxiliary electric room panels and found the blocks installed incorrectly. The blocks were re-installed in the correct position and the test was repeated. All valve actuations were verified to occur as originally intended. NRC notification via the Emergency Notification System (ENS) was completed at 2210 hours on November 3, 1987, to comply with the requirements of 10CFR50.72.

C. APPARENT CAUSE OF EVENT:

This event is being reported according to 10CFR50.73(a)(2)(iv), which requires the reporting of any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF).

The cause of this event is personnel error. The Operating Engineer, when placing the finger blocks, had counted the contact positions from left-to-right instead of right-to-left as he was facing the front of the HFA relay. Contributing to this event was the fact that there is no identification markings on the face of the relays and there is no common reference material providing contact numbering conventions for relays. Also, procedure QOS 2300-13 does not require verification of proper placement of the blocks installed.

D. SAFETY ANALYSIS OF EVENT:

The safety of the plant and personnel was not affected during this event. The HPCI system is designed to auto-initiate and supply make-up water into the vessel upon receipt of a low-low reactor water level (-59 inches) signal or a high drywell pressure (+2 psig) signal. In this event, the HPCI injection was the result of operator error and not caused by any actual abnormal plant operation. Quick action by the NSO and Operating Engineer averted any substantial rise in reactor water level. If the HPCI system had not been tripped and water level had continued to rise all other safety systems were available to bring the reactor to a safe shutdown condition.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			Page (3)		
		Year	Sequential Number	Revision Number			
d Cities Unit Two	0 5 0 0 0 2 6 5	8 7	- 0 1 7	- 0 0	0 4	QF	0 4

A review of the HPCI logic schematic determined that there was no adverse consequence to the HPCI system by initiating the system with the blocks on the incorrect relay contacts. The blocks were placed on contacts which open HPCI valves upon an initiation signal. Each of the valves affected were in the open position prior to the auto-initiation test.

E. CORRECTIVE ACTIONS:

The individual involved with this event was counseled by the Assistant Superintendent of Operating. To help prevent recurrence of this event, an attachment to QAP 300-12, System Temporary Alterations, is being developed to provide a common reference for standard relay numbering conventions. The attachment will contain diagrams of common relays and their numbering schemes. Nuclear Tracking System (NTS) number 2652008705901 will track this effort. QOS 2300-13, High Pressure Coolant Injection System Hot Fast Initiation was reviewed and determined to have adequate instructions and cautions preceding the actions to place the blocks. However, the procedure will be modified to require a verification of the block placement (NTS 2652008705902).

F. PREVIOUS EVENTS:

The procedure used in this event, QOS 2300-13, was developed in January, 1987, and had been used only once prior to this event. This is the first event in which the HPCI system has injected into the vessel as a result of incorrect relay block placement.

G. COMPONENT FAILURE DATA:

There was no component failure associated with this event.