

Exelon Generation Company, LLC
Quad Cities Nuclear Power Station
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March 10, 2003

SVP-03-040

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Unit 2
Facility Operating License No. DPR-30
NRC Docket No. 50-265

Subject: Licensee Event Report 265/03-001, "Failure to Reset Residual Heat Removal Injection Valve Containment Isolation Signal due to Inadequate Procedural Development and Review"

Enclosed is Licensee Event Report (LER) 265/03-001, "Failure to Reset Residual Heat Removal Injection Valve Containment Isolation Signal due to Inadequate Procedural Development and Review," for Quad Cities Nuclear Power Station.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(v)(D), which requires reporting of any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident, and Part 50.73(a)(2)(i)(B), which requires reporting of any operation or condition which was prohibited by the plant's Technical Specifications. The reportable event occurred on January 9, 2003; therefore, this report is due on March 10, 2003.

We are committing to the following actions:

QCOS 1600-44, "Unit 2 PCI Group 2 Partial Isolation Test at Power," and QCOS 1600-35, "Unit 1 PCI Group 2 Partial Isolation Test at Power," will be revised to include visually verifying relay status to ensure that the logic has been reset for the Group II isolation signal during restoration activities.

QCOP 1000-02, "RHR System Preparation for Standby Operation," will be revised to include visually verifying relay status to ensure that the logic has been reset for the Group II isolation signal for both loops of Residual Heat Removal as part of the preparation for standby line up.

Any other actions described in the submittal represent intended or planned actions by Exelon Generation Company LLC, (EGC). They are described for the NRC's information and are not regulatory commitments.

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Should you have any questions concerning this report, please contact Mr. W. J. Beck at
(309) 227-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "Timothy J. Tulon". The signature is stylized with large, sweeping loops and a small flourish at the end.

Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

NRC FORM 366 (7-2001)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004 Estimated burden per response to comply with this mandatory information collection request. 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.
LICENSEE EVENT REPORT (LER)		

1. FACILITY NAME Quad Cities Nuclear Power Station Unit 2	2. DOCKET NUMBER 05000265	3. PAGE 1 of 5
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4. TITLE Failure to Reset Residual Heat Removal Injection Valve Containment Isolation Signal due to Inadequate Procedural Development and Review

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	09	03	03	- 001 -	00	03	10	03	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

9. OPERATING MODE	1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check all that apply)									
10. POWER LEVEL	100	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(u)(B)		50.73(a)(2)(ix)(A)	
		20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)		50.73(a)(2)(x)	
		20.2203(a)(1)			50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)		73.71(a)(4)	
		20.2203(a)(2)(i)			50.36(c)(1)(u)(A)			50.73(a)(2)(v)(A)		73.71(a)(5)	
		20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)			
		20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)			
		20.2203(a)(2)(v)			<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)			50.73(a)(2)(vii)			
20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)					
20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)					

12. LICENSEE CONTACT FOR THIS LER

NAME Wally Beck, Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) (309) 227-2800
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE)				<input checked="" type="checkbox"/> NO		

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 9, 2003, at 0540 hours, with Unit 2 in Mode 1 at 100% power, a Residual Heat Removal (RHR) injection valve failed to stay open during a valve test. It was determined that a containment isolation signal for that valve was sealed in. The isolation signal was reset and the valve was satisfactorily tested. The isolation signal for the injection valve in the other Unit 2 RHR loop was also found sealed in, and was reset. The 'seal in' condition for these relays is not annunciated nor are there any other secondary indications available for monitoring this portion of the RHR logic.

The root cause of the event was inadequate procedural development and review. A revision made to a logic test procedure in 1999 failed to ensure that the isolation signal was reset at the end of the test. The logic test had last been performed on December 18, 2002. Corrective actions included revising the procedure to verify that the isolation signal has been reset.

The safety significance of this event was minimal. Although the injection valves would not operate automatically, the isolation signal could be reset from the control room. Also, the Core Spray system was operable and capable of post-accident low pressure injection.

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 2957 Megawatts Thermal Rated Core Power
Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION

Failure to Reset Residual Heat Removal Injection Valve Containment Isolation Signal due to Inadequate Procedural Development and Review

A. CONDITION PRIOR TO EVENT

Unit: 2 Event Date: January 9, 2003 Event Time: 0540 hours
Reactor Mode: 1 Mode Name: Power Operation Power Level: 100%

Power Operation (1) - Mode switch in the RUN position with average reactor coolant temperature at any temperature.

B. DESCRIPTION OF EVENT

On January 9, 2003, at 0540 hours, the Unit 2 Control Room Operator was performing QCOS 1000-09, "RHR Power Operated Valve Test," as part of scheduled activities. The surveillance directed that the Low Pressure Coolant Injection (LPCI) [BO] injection valve [INV], 2-1001-29A, be stroked and timed in the open direction. When the valve reached the open position, the valve immediately began to stroke closed without operator action. The valve continued to the full closed position.

Upon investigation, the shift crew determined that a relay (10A-K63A) [RLY] in the valve logic was in the energized state. This was contrary to the expected de-energized state; this relay would normally only be energized if the Residual Heat Removal (RHR) system were in the Shutdown Cooling (SDC) mode of operation and a Group II Primary Containment Isolation (PCI) [JM] signal were received. The shift crew also reviewed the state of the relay for the other loop of RHR (10A-K63B) and found it to be energized as well.

When the RHR system is in the SDC mode of operation, the 2-1001-29A and B valves provide the path for SDC return to the vessel/injection. The 10A-K63A and B relays function to provide a Group II isolation signal to the 2-1001-29A and B valves when RHR is in the SDC mode of operation. The RHR Group II isolation circuit is enabled when the 2-1001-47 and 50 valves, Shutdown Cooling Suctions, are in the open position.

Further investigation has identified that surveillance QCOS 1600-44, "Unit 2 PCI Group 2 Partial Isolation Test at Power," had previously been performed on December 18, 2002. This surveillance verifies the Group II function of the RHR SDC mode of operation. Jumpers are installed to simulate the open position for the 2-1001-47 and 50 valves and the Group II isolation signal. The 10A-K63A and B relays are verified to be energized, and the 2-1001-29A and B are verified to close. The 10A-K63A and B relays are sealed-in upon receipt of the Group II isolation signal

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and require manual reset.

To reset the Group II isolation signal to the 2-1001-29A and B valve logic, two reset pushbuttons on the control room panel must be depressed, one for the A loop of RHR and one for the B loop of RHR. The reset pushbuttons are depressed several times while performing QCOS 1600-44 to allow for reopening of the 2-1001-29A and B valves in preparation for additional Group II isolation signal testing. During review of QCOS 1600-44, it was determined that upon completion of the final Group II signal initiation, there was no procedural direction to reset the isolation signal. Thus, the Group II isolation signal remained sealed in. As part of system restoration to a standby lineup, the 2-1001-29A and B valves are verified to be in the closed position. This was the position of the valves at the conclusion of QCOS 1600-44.

With the Group II isolation signal present (10A-K63A and B energized) during operation, the 2-1001-29 A and B LPCI injection valves will not open upon an initiation of the LPCI injection signal. The signal is blocked by the 10A-K63A and B relays. The 'seal in' condition for these relays is not annunciated nor are there any other secondary indications available for monitoring this portion of the RHR logic. With the open signal blocked to the 2-1001-29A and B valves, both Unit 2 LPCI subsystems were considered inoperable. Technical Specifications (TS) 3.5.1.B (seven-day Allowed Outage Time) and 3.5.1.D (72-hour Allowed Outage Time) were entered at the time of discovery.

The shift crew reset the Group II signal by depressing the reset pushbuttons for both loops of RHR, verified the 10A-K63A and B relays had de-energized, and satisfactorily stroked the 2-1001-29A and B valves.

The TSs were exited at 0625 hours on January 9, 2003.

The Unit 1 RHR SDC Group isolation logic relays (10A-K63A and B) were inspected to determine their state. The relays were verified to be in the expected de-energized state.

C. CAUSE OF EVENT

The root cause of this event was inadequate procedural development and review such that it was not ensured that the valve logic was reset at the conclusion of the procedure.

In 1995, LER 2-95-003, "Shutdown Cooling (SDC) Was Not Available Due To MO 2-1001-29A Tripping Its Circuit Breaker and MO 2-1001-5B Valve Being Out Of Service," was issued. One of the corrective actions for that LER was to change QCOS 1600-13, "Refueling Outage PCI Groups 2 and 3 Isolation Test," to ensure that the reset pushbutton was pressed at the end of the procedure. Revision 1 of QCOS 1600-35 was created in February 1999. This procedure revision was not reviewed in sufficient detail to identify that the step to ensure that the isolation logic was reset after the final signal had not been included. In May 2000, QCOS 1600-44 was created to be specific to Unit 2 when QCOS 1600-35 was revised to be a Unit 1 procedure.

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D. SAFETY ANALYSIS

The safety significance of this event was minimal. Although the Unit 2 RHR injection valves would not have opened automatically between December 18, 2002, and January 9, 2003, the logic could have been reset and the valves opened manually from the control room. Additionally, the Core Spray system [BM] was operable during this time frame.

E. CORRECTIVE ACTIONS

Immediate Actions

The isolation logic was reset, the relays were examined to ensure that they were de-energized, and the RHR injection valves were stroked.

The corresponding relays on Unit 1 were examined to ensure that they were de-energized.

Corrective Actions Completed

Other logic tests were reviewed to identify any similar discrepancies. No other cases were identified involving the capability to have logic not reset without any indication of that condition.

The following three procedures were revised:

- QCOS 1600-44, "Unit 2 PCI Group 2 Partial Isolation Test at Power," was revised to include reset of the Group II isolation signal during restoration activities.
- QCOS 1600-35, "Unit 1 PCI Group 2 Partial Isolation Test at Power," was revised to include reset of the Group II isolation signal during restoration activities.
- QCOP 1000-02, "RHR System Preparation for Standby Operation," was revised to include depressing of the reset pushbuttons for both loops of RHR as part of the preparation for standby line up.

Operations has completed a Focused Area Self-Assessment of the Procedure Review and Approval Process, which identified enhancements in process implementation.

Corrective Actions to be Completed

QCOS 1600-44, "Unit 2 PCI Group 2 Partial Isolation Test at Power," and QCOS 1600-35, "Unit 1 PCI Group 2 Partial Isolation Test at Power," will be revised to include visually verifying 10A-K63A and B relay status to ensure that the logic has been reset for the Group II isolation signal during restoration activities.

QCOP 1000-02, "RHR System Preparation for Standby Operation," will be revised to include visually verifying 10A-K63A and B relay status to ensure that the logic has been reset for the Group II isolation signal for both loops of RHR as part of the preparation for standby line up.

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F. PREVIOUS OCCURRENCES

A review of events for the last time three years identified the following similar event.

LER 1-00-007, "Inadequate Fill and Vent Surveillance Performed on High Pressure Coolant Injection Resulting in Air in Discharge Piping," was submitted on January 26, 2001. This event involved an inadequate fill and vent of the High Pressure Coolant Injection (HPCI) [BJ] system following maintenance. The fill and vent was not performed correctly because the procedure was inadequate due to an inadequate review during the revision process. The corrective actions for this HPCI venting event would not have precluded the failure to reset the Group II isolation for RHR because the revision to the RHR procedure predated the HPCI venting event.

Additionally, as described in the "Cause of Event" section, LER 2-95-003 was a previous occurrence of this event.

G. COMPONENT FAILURE DATA

There were no component failures associated with this event.