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Quad Cities Nuclear Power Station
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Nuclear

April 29, 2002

SVP-02-032

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

Quad Cities Generating Station, Unit 1
Facility Operating License No. DPR-29
NRC Docket No. 50-254

Subject: Revision 01 of Licensee Event Report 254/00-010, "Automatic Reactor Scram from Low Reactor Vessel Level"

Enclosed is Licensee Event Report (LER) 254/00-010, "Automatic Reactor Scram from Low Reactor Vessel Level," Revision 01, for Quad Cities Nuclear Power Station.

The root cause investigation for the event was completed subsequent to the submittal of the original LER. The LER has been revised to incorporate the pertinent root cause and corrective action information.

The following action is being committed to in this submittal:

The existing Feedwater Level Control System will be replaced with a more reliable Digital Feedwater Control System on Unit 1.

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

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

Respectfully,



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

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

IE22

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 1			2. DOCKET NUMBER 05000254		3. PAGE 1 of 3		
4. TITLE Automatic Reactor Scram from Low Reactor Vessel Level							
5. EVENT DATE		6. LER NUMBER		7. REPORT DATE		8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY
12	06	00	00	- 010 - 01		04	29
						FACILITY NAME N/A	
						DOCKET NUMBER N/A	
9. OPERATING MODE 1		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)					
		20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)	
		20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)	
10. POWER LEVEL 100		20.2203(a)(1)		50.36(c)(1)(i)(A)		X 50.73(a)(2)(iv)(A)	
		20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)	
		20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)	
		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)		50.73(a)(2)(v)(D)	
		20.2203(a)(2)(v)		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			
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT							
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT
B	JB	LC	G080	Y			
14. SUPPLEMENTAL REPORT EXPECTED					15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE)					MONTH DAY YEAR		
X NO							

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

At 0940 hours on December 6, 2000, with reactor power at 100%, Unit One reactor water level started to decrease and the low-level alarm was received. The operators took the Feedwater Level Control System (FWLC) out of three-element control and placed it in single-element control. They then took manual control of the 'B' Feedwater Regulating Valve (FWRV) and opened the valve, causing reactor level to increase. At about 0941 hours reactor level started to decrease rapidly and the 'A' FWRV locked up. A reactor scram signal was received at 0942 hours, with indicated reactor water level at 20 inches. All automatic actions occurred consistent with a low-level reactor scram.

The root cause of this event was an age-related failure of a solder joint on the master controller for the 'A' FWRV. Additionally, Operations procedures and training did not support reducing power to mitigate or prevent the reactor scram as an immediate operator action.

The safety significance of this event was minimal. Although the event resulted in a reactor trip, all safety systems responded as designed. This report is submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(iv).

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Quad Cities Nuclear Power Station Unit 1	05000254	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		2000	010	01	

(If more space is required, use additional copies of NRC Form 366A)(17)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 2511 Megawatts Thermal Rated Core Power
Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION

Automatic Reactor Scram from Low Reactor Vessel Level

A. CONDITION PRIOR TO EVENT

Unit: 1 Event Date: December 6, 2000 Event Time: 0942 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

At 0940 hours on December 6, 2000, with reactor power at 100%, Unit One reactor water level started to decrease and the low-level alarm was received. The operators took the Feedwater Level Control System (FWLC) [JB] out of three-element control and placed it in single-element control. They then took manual control of the 'B' Feedwater Regulating Valve (FWRV) [LCV] and opened the valve, causing reactor level to increase. At about 0941 hours reactor level started to decrease rapidly and at the same time the 'A' FWRV locked up. A reactor scram signal [JC] was received at 0942 hours, with indicated reactor water level at 20 inches. All automatic actions occurred consistent with a low-level reactor scram.

C. CAUSE OF EVENT

The root cause of this event has been determined to be an age-related failure of a solder joint on the master controller for the 'A' FWRV. A contributing cause for this event was the fact that Operations procedures and training did not support reducing power to mitigate or prevent the reactor scram as an immediate operator action.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. The failure of the 'A' FWRV caused reactor level to decrease below the scram setpoint. After the scram reactor level returned to normal level. Reactor water level did not go below 158.8" above the top of active fuel. All safety systems responded as designed. There were no safety system functional failures associated with this event.

This event was determined to be reportable under 10 CFR 50.73(a)(2)(iv) as an event that resulted in an automatic actuation of the Reactor Protection System.

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

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Quad Cities Nuclear Power Station Unit 1	05000254	2000	010	01	3 of 3

(If more space is required, use additional copies of NRC Form 366A)(17)

E. CORRECTIVE ACTIONSImmediate Actions

An immediate inspection of the Feedwater Level Control system was conducted. When the bad solder joint was located, it was repaired. The other solder joints on the board were also inspected, and two additional joints were repaired as a result of that inspection.

Additionally, the spare controller in stock was visually inspected, with no discrepancies noted. The Unit 2 controller was modified and inspected in February 2000 with no discrepancies noted. At Quad Cities Nuclear Power Station this type of controller is used only in this system.

The annunciator procedure (QCAN 901(2)-5 F-8) and Abnormal Operating Procedure (QCOA 0201-09) associated with this event were revised to allow operators, as an immediate action, to reduce recirculation pump speed to maintain level.

Corrective Actions Completed:

Abnormal Operating Procedures were reviewed and changes made to move some subsequent operator actions to the immediate operator actions section of the procedures.

Training has been provided to all Operations crews emphasizing power reduction as a means of controlling level during a reactor level transient.

The Unit 2 Feedwater Level Control System has been replaced with a more reliable Digital Feedwater Control System.

Corrective Actions to be Completed:

The existing Feedwater Level Control System will be replaced with a more reliable Digital Feedwater Control System on Unit 1.

F. PREVIOUS OCCURRENCES

There were no previous occurrences identified at Quad Cities Nuclear Power Station involving a scram due to failure of a solder joint.

G. COMPONENT FAILURE DATA

The feedwater level master controller is a General Electric Controller, Part #50-548-011FAK11.