

Exelon Generation Company, LLC  
Quad Cities Nuclear Power Station  
22710 206<sup>th</sup> Avenue North  
Cordova, IL 61242-9740

www.exeloncorp.com

December 8, 2005

SVP-05-083

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

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

Subject: Licensee Event Report 254/05-002, "Trip of Unit 1 Division I 4kV Emergency Bus Feed to 480 VAC Emergency Buses in Both Divisions Due to Ineffective Previous Corrective Actions"

Enclosed is Licensee Event Report (LER) 254/05-002, Revision 1, "Trip of Unit 1 Division I 4kV Emergency Bus Feed to 480 VAC Emergency Buses in Both Divisions Due to Ineffective Previous Corrective Actions," for Quad Cities Nuclear Power Station.

This report was originally submitted on May 26, 2005, in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(v), 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 (B) remove residual heat, or (D) mitigate the consequences of an accident.

This report has been revised to clearly apply to both Unit 1 and Unit 2.

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 Nuclear Power Station

JE22

# LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory 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 and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 an 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.

<b>1. FACILITY NAME</b> Quad Cities Nuclear Power Station, Unit 1	<b>2. DOCKET NUMBER</b> 05000 254	<b>3. PAGE</b> 1 of 4
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**4. TITLE** Trip of Unit 1 Division I 4kV Emergency Bus Feed to 480 VAC Emergency Buses in Both Divisions Due to Ineffective Previous Corrective Actions

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	27	2005	2005	- 02 -	01	12	08	2005	Quad Cities Nuclear Power Station, Unit 2	05000 265
									FACILITY NAME	DOCKET NUMBER
									N/A	05000

<b>9. OPERATING MODE</b> 5	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply)									
<b>10. POWER LEVEL</b> 000	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER							
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below in NRC Form 366A							

**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

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

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

On March 27, 2005, at 1930 hours, with Unit 1 in Refueling Mode, the main feed breaker between the Unit 1 Division I 4kV Emergency Bus and the Unit 1 Division I 480 VAC Emergency Bus tripped. Because the 480 VAC Emergency Buses were cross-tied, power was lost to both divisions of 480 VAC emergency power. The effects of the trip included degradation of the systems used for Alternate Decay Heat Removal (ADHR) and loss of power to the Control Room Emergency Ventilation System (which applies to both units). Fuel moves were halted and power was provided to the 480 VAC Emergency Buses from the Unit 1 Division II 4kV Emergency Bus.

The root cause of the trip of the feed breaker to the Division I 480 VAC Emergency Bus was ineffective corrective action for two prior similar events in 1984 and 1987. Corrective actions include revision to the procedure for cross-tying the 480 VAC emergency buses to provide more restrictive operational precautions and better guidance concerning increased monitoring of bus current when the 480 VAC emergency buses are cross-tied.



**LICENSEE EVENT REPORT (LER)**

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

Bus [EF] and Essential Service Bus, loss of power to the Control Room Emergency Ventilation (CREV) system (which applies to both units) and a Reactor Protection System (RPS) [JC] trip with no control rod movement.

In response to the breaker trip, fuel moves were halted. At 2001 hours, Bus 19 was reenergized from Bus 14-1, after the return to service was expedited following completion of the work on Bus 14-1. The 1B RBCCW pump and 1B Fuel Pool Cooling Water pump were restarted from Bus 19. Following reestablishment at 2012 hours of the cross-tie between Bus 18 and Bus 19, but with Bus 19 feeding Bus 18 this time, power was restored to the Instrument Bus, the Essential Service Bus, the 1A Core Spray injection valve and the 1A 125 VDC battery charger, and the 1A RBCCW pump was restarted. At 2015 hours, the 1A Fuel Pool Cooling Water pump was restarted, fully restoring ADHR. At 2342 hours, the CREV system was declared operable. At 2357 hours, Unit 1 fuel moves recommenced.

At 0012 hours on March 28, 2005, the NRC was notified of the event through the Emergency Notification System in accordance with 10CFR50.72(b)(3)(v), "event or condition that could have prevented fulfillment of a safety function."

**C. CAUSE OF EVENT**

It was determined, following extensive testing on the Bus 18 feed breaker, that the breaker trip was due to long-time over-current rather than equipment malfunction or personnel error. The long-time over-current condition was due to high base loads involving operating all of the drywell coolers, coupled with cyclic loads, while the buses were cross-tied. While this lineup was not procedurally prohibited, it is not typical that this would occur during a refueling outage at Quad Cities Nuclear Power Station.

The root cause of the trip of the feed breaker from Bus 13-1 to Bus 18 was ineffective corrective action for two prior events. On February 11, 1984, (LER 265/83-003) and November 1, 1987, (LER 265/87-014), similar events occurred involving unexpected loss of the 480 VAC busses due to the addition of large loads while they were cross-tied. Although precautions concerning the potential for unexpected breaker trips were added to the cross-tie procedure in response to both of the previous events, they were ineffective in controlling loading on the busses while they were cross-tied. There were no opportunities to identify the ineffective procedure between 1987 and this event because the drywell coolers were not operated with the 480 VAC Emergency Buses cross-tied.

**D. SAFETY ANALYSIS**

The safety significance of this event was minimal. As a result of this event, two of the four operating fuel pool cooling pumps were de-energized. An analytical simulation of the fuel pool temperature demonstrated that the two operating pumps had the capacity to maintain and decrease fuel pool temperature below 170 degrees F. Therefore, although the ADHR was degraded, it retained the capability to cool the fuel pool.

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Also, the safety significance of the loss of power to the 1/2A Core Spray injection valve was minimal. The system was conservatively declared unavailable, but the reactor cavity was flooded and the injection valve could have been manually opened if needed for reactor inventory.

This event is being reported as a condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to remove residual heat (i.e., ADHR degradation) and mitigate the consequences of an accident (i.e., loss of power to CREV, which applies to both units).

**E. CORRECTIVE ACTIONS**

Corrective Actions Completed:

A temporary procedure change was implemented during the refuel outage to add additional more restrictive operational precautions concerning the cross-tying of Buses 18 and 19.

Corrective Actions to be Completed:

The procedure for cross-tying the 480 VAC Emergency Buses will be revised to add additional precautions to administratively limit the loads on the cross-connected 480 VAC buses, and to provide a specific procedural reference concerning the appropriate method to provide increased monitoring.

**F. PREVIOUS OCCURRENCES**

On February 11, 1984, (LER 265/83-003) and November 1, 1987, (LER 265/87-014), similar previous events occurred involving unexpected loss of the 480 VAC busses due to the addition of large loads while they were cross-tied. The corrective actions for these events were insufficient to preclude this event.

**G. COMPONENT FAILURE DATA**

There were no component failures associated with this event.