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

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January 13, 2003

SVP-03-007

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

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

Subject: Licensee Event Report 254/02-002, "Automatic Initiation and Loading of Emergency Diesel Generator due to Loss of Voltage to Emergency Bus as a Result of Door to Potential Fuse Drawer Falling Open"

Enclosed is Licensee Event Report (LER) 254/02-002, "Automatic Initiation and Loading of Emergency Diesel Generator due to Loss of Voltage to Emergency Bus as a Result of Door to Potential Fuse Drawer Falling Open," for Quad Cities Nuclear Power Station, Unit 1.

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 reporting of any event or condition that resulted in manual or automatic actuation of emergency ac electrical power systems, Part 50.73(a)(2)(i)(B), which requires reporting of any operation or condition which was prohibited by the plant's Technical Specifications, and 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.

The reportable event occurred on November 13, 2002. Therefore, this report is required to be submitted by January 13, 2003.

We are committing to the following actions:

The results of the investigation regarding the operation of the potential fuse compartment door locking mechanism will be reviewed with the operating crews.

Training regarding the vulnerability associated with the potential fuse compartment door locking mechanism will be incorporated into the Operations recurring training program.

A checklist that provides a method to positively check the condition of the potential fuse compartment door when it is shut will be incorporated into the appropriate Operations procedures.

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A placard will be attached to the affected potential fuse compartment doors that warns of the failure of the handle to provide positive indication that the door is properly latched and that includes instructions that direct the manner in which the door should be operated.

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.

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

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION LICENSEE EVENT REPORT (LER) 1. FACILITY NAME Quad Cities Nuclear Power Station Unit 1							APPI Estima hours indust US N bjs1@ (3150- inform condu	ROVED BY Reported k y. Send comr luclear Regu nrc gov, and 0104), Office i ation collectiv ct or sponsor, DCKET NU	ON er re essor latory to the of Ma on do and MBE	IB NO. 3150-0 sponse to comply is learned are into regarding burder / Commission, W Desk Officer, Offinagement and Bu pes not display a a person is not re ER	v with this r corporated n estimate t /ashington, fice of Infor diget, Wash currently vi-	 (PIRES 7-31-2004 nandatory information collection request 50 into the licensing process and fed back to o the Records Management Branch (T-6 E6), DC 20555-0001, or by internet e-mail to mation and Regulatory Affairs, NEOB-10202 ington, DC 20503. If a means used to impose alid OMB control number, the NRC may not aspond to, the information collection 3. PAGE 					
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On November 13, 2002, at 0458 hours, with Unit 1 in Refuel Mode, the Unit 1 Division II Emergency Diesel Generator (EDG) started automatically and loaded to the emergency bus (Bus 14-1) in response to a loss of voltage on the bus. This occurred when the door for the Bus 14-1 potential fuse drawer opened, which caused a sensed loss of voltage, the opening of the feed breakers, and the resulting actual loss of voltage to Bus 14-1.

It was determined that the door to the potential fuse drawer had not been completely latched. The root cause was a lack of awareness of the vulnerability of the door locking mechanism. Immediate corrective actions included closing the door and verifying other potential fuse drawer doors were latched. One other door at the bus that feeds Bus 14-1 (Bus 14) was identified as being closed but not fully latched.

The safety significance was minimal in that both unlatched doors were on Unit 1 Division II. The Division I Emergency Bus and EDG were not affected by this issue.

Corrective actions include training, development of a checklist for ensuring the doors are latched, and placement of a warning placard on each door.

NRC FORM 366A	
(7-2001)	

U.S. NUCLEAR REGULATORY COMMISSION

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	
		2002	002	00	2 of 4

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

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

Automatic Initiation and Loading of Emergency Diesel Generator due to Loss of Voltage to Emergency Bus as a Result of Door to Potential Fuse Drawer Falling Open

A. CONDITION PRIOR TO EVENT

Unit: 1		,	Event	Date:	Novembe	r 13,	2002	Event	Time:	0458	hours
Reactor Mode:	5	:	Mode	Name: -	Refueling	a ^{'''}	-	Temp:	84 de	egrees	F
Refueling (5)	- Mode	switch	in t	the Shu	tdown or 1	Refue.	l posit	zion wit	h fue	l in th	ıe

reactor vessel and one or more vessel head closure bolts less than fully tensioned.

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DESCRIPTION OF EVENT

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On November 13, 2002, with Unit 1 in Refuel Mode (Mode 5) and no fuel moves in progress, an electrical maintenance crew was completing a support activity for the installation of a modification to the Division II Emergency Bus (Bus 14-1) [EK] [BU]. Inside the cubicle adjacent to the cubicle that the crew was working on there are two drawers mounted one over the other. The top drawer houses the Bus 14-1 potential transformer [XPT] fuses [FU]. Each drawer has a door [DR] that is hinged on the bottom. The drawers are designed such that opening the door causes the potential transformer fuses to disconnect. This causes the bus instrumentation to sense a loss of voltage at the bus and open the input breakers [BKR] to the bus, causing an actual loss of voltage.

The activity in progress involved the removal of a flange between the two cubicles. At 0458 hours, while the second of six rivets holding the flanges in place was being removed, the door to the upper potential transformer fuse drawer fell open. As a result of the door opening, the breakers providing power to the bus tripped open and the Unit 1 Emergency Diesel Generator (EDG) [DG] started automatically and loaded to the bus. Indications of a loss of power to Bus 14-1 and an automatic start and load of the Unit 1 EDG were received in the control room.

The electricians conducting the work notified the control room. Operations personnel were sent to the bus and closed the door to the potential transformer fuse drawer. The locking mechanism appeared to operate properly when the door was shut.

The door for the potential transformer fuse drawer in Bus 14-1 is similar to drawers in the emergency buses and the buses that supply the emergency buses for both divisions on both units. There are also similar drawers for each of the EDGs. Door construction and operation in each of these drawers is identical.

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The doors to the potential transformer fuse drawers for the Unit 1, Division I and II, EDGs, emergency buses, and the buses that supply power to the emergency buses were verified to be closed and latched. This was accomplished by pushing on each of the doors to free the latch and allow it to engage fully. During verification that the door to the Unit 1 Bus 14 drawer was latched, the door latch clicked shut, indicating that it had previously been not fully latched but was now fully latched. Bus 14 provides power to Bus 14-1.

All such doors on Unit 2 were verified by radiography to be fully latched.

C. CAUSE OF EVENT

The root cause of the event was that Operations department personnel were not aware of the vulnerability associated with the door locking mechanism that existed in the design of the potential fuse compartment door. Operations department personnel were not aware that the door could be closed with the handle in the closed position, but the latch be in a less than fully latched condition. This resulted in the failure of the latching mechanism to adequately engage the door frame to lock the potential fuse compartment door shut. When properly latched, the door will not fall open.

D. SAFETY ANALYSIS

The safety significance of having the doors to two potential transformer fuse drawers not fully latched was minimal. Although the two doors that were not fully latched (one on Bus 14-1 and one on Bus 14, which is the bus that supplies offsite power to Bus 14-1) were capable of falling open during a seismic event, it was determined that they would not have been damaged during the seismic event such that they could not have been reclosed. It was also determined that the doors remaining open during the seismic event would not have caused other relay actuations to occur.

The effect of the doors falling open would be to render the Division II emergency bus incapable of carrying emergency loads until the door was reclosed. Although the EDG would have started and loaded to the bus, the equipment that was shed as a result of the loss of voltage to the bus would not reclose to the bus until the undervoltage trip signal was cleared. This would require the door to be reclosed. Therefore, the Division II Residual Heat Removal (RHR) [BO] and Core Spray [BM] pumps would not have had power after a seismic event.

This affected only Unit 1 Division II. The Division I equipment was not affected by this issue.

E. CORRECTIVE ACTIONS

Immediate Actions:

The door to the Bus 14-1 drawer was closed and latched.

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Corrective Actions Completed:

The doors to the potential transformer fuse drawers for the Unit 1, Division I and II, EDGs, emergency buses, and the buses that supply power to the emergency buses were verified to be closed and latched. This was accomplished by pushing on each of the doors to free the latch and allow it to engage fully. During verification that the door to the Unit 1 Bus 14 drawer was latched, the door latch clicked shut, indicating that it had previously not been fully latched but was now fully latched.

All such doors on Unit 2 were verified by radiography to be fully latched.

Corrective Actions to be Completed:

The results of the investigation regarding the operation of the potential fuse compartment door locking mechanism will be reviewed with the operating crews.

Training regarding the vulnerability associated with the potential fuse compartment door locking mechanism will be incorporated into the Operations recurring training program.

A checklist that provides a method to positively check the condition of the potential fuse compartment door when it is shut will be incorporated into the appropriate Operations procedures.

A placard will be attached to the affected potential fuse compartment doors that warns of the failure of the handle to provide positive indication that the door is properly latched and that includes instructions that direct the manner in which the door should be operated.

F. PREVIOUS OCCURRENCES

No previous events at Quad Cities Nuclear Power Station were identified that were similar to the event described above.

G. COMPONENT FAILURE DATA

The potential transformer fuse drawers with this type of latching mechanism are in General Electric Magne Blast AMH switchgear.