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Exelon Nuclear

June 28, 2005

SVP-05-051

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 254/05-004, "Off-Site Power Inoperable Due to Low Predicted Switchyard Voltage"

Enclosed is Licensee Event Report (LER) 254/05-004, "Off-Site Power Inoperable Due to Low Predicted Switchyard Voltage," 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.

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

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Quad Cities Nuclear Power Station, Unit 1	05000254	1 OF 3

4. TITLE Off-Site Power Inoperable Due to Low Predicted Switchyard Voltage

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
									Quad Cities Nuclear Power Station, Unit 2	05000265
04	29	2005	2005	- 004 -	00	06	28	2005	FACILITY NAME N/A	DOCKET NUMBER 05000

9. OPERATING MODE: 1

10. POWER LEVEL: 085%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☒ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Wally Beck, Regulatory Assurance Manager	(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	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)*	☒ NO				

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

On April 29, 2005, at 0732 hours, with both units at approximately 85% power in Run mode, Quad Cities Nuclear Power Station was notified by the Exelon Energy Delivery (EED) Load Dispatcher that the predicted switchyard voltage following a unit scram coincident with a loss of coolant accident (LOCA) would be too low to ensure that the emergency electrical buses would not trip due to degraded voltage. The station declared both sources of off-site power inoperable for both units, entered the appropriate Technical Specifications, and made an Emergency Notification System (ENS) call for a condition that could have prevented the fulfillment of the safety function of a system needed to mitigate the consequences of an accident. At 0836 hours, the station was notified by the EED Load Dispatcher that the predicted switchyard voltage was high enough to ensure that the emergency electrical buses would not trip due to degraded voltage following a unit scram coincident with a loss of coolant accident (LOCA).

The safety significance of this event was minimal. The Emergency Diesel Generators and Station Blackout Diesel Generators were all fully operable.

Design changes will be implemented to replace the Reserve Auxiliary Transformers with automatic load tap changing transformers.

PLANT AND SYSTEM IDENTIFICATION

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

EVENT IDENTIFICATION

Off-Site Power Inoperable Due to Low Predicted Switchyard Voltage

A. CONDITION PRIOR TO EVENT

Unit: 1	Event Date: April 29, 2005	Event Time: 0732 hours
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 85%
Unit: 2	Event Date: April 29, 2005	Event Time: 0732 hours
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 85%

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

B. DESCRIPTION OF EVENT

On April 29, 2005, at 0732 hours, with both units at approximately 85% power in Run mode, Quad Cities Nuclear Power Station was notified by the Exelon Energy Delivery (EED) Load Dispatcher that the predicted switchyard voltage following a unit scram coincident with a loss of coolant accident (LOCA) would be below the threshold required to ensure that the emergency electrical buses would not trip due to degraded voltage. The station declared both sources of off-site power inoperable for both units, entered the appropriate Technical Specifications and made an Emergency Notification System (ENS) call for a condition that could have prevented the fulfillment of the safety function of a system needed to mitigate the consequences of an accident. At 0836 hours, the station was notified by the EED Load Dispatcher that the predicted switchyard voltage was high enough to ensure that the emergency electrical buses [EB] would not trip due to degraded voltage following a unit scram coincident with a loss of coolant accident (LOCA).

The emergency buses are designed such that below certain voltages their degraded voltage relay will not reset. In order to ensure that bus voltage does not drop below the degraded voltage setpoint, the EED Load Dispatcher calculates a predicted value for the yard voltage assuming the current yard voltage as a starting value and postulating the loss of power from one or both units that would be expected following a Design Basis Accident. Losses from the switchyard to the emergency buses are factored into the voltage that is supplied to the EED Load Dispatcher as an acceptable voltage for the switchyard. These losses are related to the number of large pumps (normal and post-accident) that are expected to be in operation on that unit following an accident. When the predicted yard voltage falls below the provided value, the EED Load Dispatcher notifies the station.

In addition, during reviews associated with the condition described above, it was determined that the acceptable value that had been provided to the EED Load Dispatcher assumed that only two circulating water pumps were operating. Starting April 22, 2005, on Unit 1 and April 13, 2005, on Unit 2, the units were operated with three circulating water pumps [P] operating. This condition is being analyzed for any potential effect on the operability of off-site power. A supplemental report will be provided if it is determined that off-site power was inoperable.

C. CAUSE OF EVENT

The low switchyard voltage was caused by the unexpected operation of a local steel mill furnace connected to a 345 kV line tied to the Quad Cities Nuclear Power Station switchyard. Operation of the furnace was not pre-planned with the EED Load Dispatcher, therefore the Load Dispatcher was unable to arrange for other power sources to support grid voltage in a timely manner.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. The condition lasted approximately one hour, during which time the Emergency Diesel Generators [EK] and Station Blackout Diesel Generators were all fully operable.

E. CORRECTIVE ACTIONS

The current design of the off-site sources utilizes a Reserve Auxiliary Transformer [XFMR] with a manual tap changer that is set on one constant position while the transformer is in operation. There is no means of adjusting the tap of the existing transformers to adjust for switchyard voltage variations while the transformer is in operation. Design changes will be implemented to replace the Reserve Auxiliary Transformers with automatic load tap changing transformers.

F. PREVIOUS OCCURRENCES

Although the EED Load Dispatcher has informed the station on three previous occasions that the predicted voltage was below the acceptable voltage, during each of those events, one of the units was not operating. Therefore, since there were fewer large-pump loads on the non-running unit, it was not necessary to declare both sources of off-site power inoperable. There are no previous events involving both sources of off-site power being inoperable due to the predicted post-trip switchyard voltage being too low.

G. COMPONENT FAILURE DATA

There were no component failures associated with this event.