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Exelon Nuclear

July 19, 2002

10 CFR 50.73

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

LaSalle County Station, Unit 2
Facility Operating License No. NPF-18
NRC Docket No. 50-374

Subject: Licensee Event Report

In accordance with 10 CFR 50.73(a)(2)(v)(D), Exelon Generation Company, (EGC), LLC, is submitting Licensee Event Report Number 02-002-00, Docket No. 050-374.

Should you have any questions concerning this letter, please contact Mr. Glen T. Kaegi, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Mark A. Schiavoni
Plant Manager
LaSalle County Station

Attachment: Licensee Event Report

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County 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 hrs. 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, and by internet e:mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NOEB-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)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
LaSalle County Station, Unit 2	05000374	1 of 3

4. TITLE Loss of Voltage Control on the 2B Emergency Diesel Generator Due to Failure of the Voltage Regulator Range Potentiometer R3

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
									LaSalle County Station, Unit 1	05000373
05	30	2002	2002	- 002 -	00	07	19	02	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	100

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)	☐ 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)(ii)(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
☐ 20.2203(a)(2)(iii)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC From 366A
☐ 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	TELEPHONE NUMBER (Include Area Code)
Robert Cockrel, System Engineer	(815) 415-2499

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	EK	EC	B093	Y					

14. SUPPLEMENTAL REPORT EXPECTED

	YES (If yes, complete EXPECTED SUBMISSION DATE)	☒	NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On 05/30/02, at 1551, the 2B Diesel Generator (DG) was started and brought to full load for post-maintenance testing. The DG operated normally for approximately 15-20 minutes, then reactive load (VAR) began to vary erratically. The operator attempted to control VAR manually using the voltage regulator motor-operated potentiometer without success, and the 2B DG was unloaded and shutdown.

The cause was a failure of the voltage regulator range potentiometer R3. The root cause was determined to be inadequate design, since the potentiometer used is inherently noisy. Corrective actions were to replace the R3 potentiometer, and to establish a periodic testing program to ensure that R3 performance does not degrade. The Station is pursuing an alternative potentiometer for this application.

The safety significance of the event was minimal. The 2B DG was out-of-service for maintenance when the failure occurred, and was restored to operable status within the Technical Specification allowed outage time. The 2B DG provides emergency power to High Pressure Core Spray (HP). Normal AC power was available to HP at all times, and all other ECCS systems and Reactor Core Isolation Cooling were operable during the event.

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

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 3489 Megawatts Thermal Rated Core Power

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 05/30/02 Event Time: 1551 Hours
Reactor Mode(s): 1 Power Level(s): 100
Mode(s) Name: Run

B. DESCRIPTION OF EVENT

On 05/30/02, at 1551, the 2B Diesel Generator (DG) [EK] was started and brought to full load for post-maintenance testing. The DG operated normally for approximately 15-20 minutes, then reactive load (VAR) began to vary erratically. The control room operator was unable to control VAR manually using the voltage regulator motor-operated potentiometer (MOP).

The 2B DG was unloaded and the MOP was wiped (exercised) in accordance with LOS-DG-M3 "1B(2B) Diesel Generator Operability Test." The DG was returned to full load, and VAR continued to vary erratically. It was then unloaded and shutdown.

Troubleshooting determined the cause of the event to be a failure of the voltage regulator range potentiometer R3. Because the other four LaSalle DGs use the same R3 potentiometer, operability tests were conducted in accordance with TS 3.8.1., RA B.3.1., on the 0, 1A, 1B, and 2A DGs, in order to determine that they were not inoperable due to a common mode failure. All were tested successfully.

The R3 potentiometer and the MOP were replaced, and the 2B DG was returned to service at 1350 on 5/31/02.

The 2B DG provides emergency power to the single-train High Pressure Core Spray (HP) [BG] system; therefore, this failure was determined to be reportable under 10 CFR 50.72(b)(3)(v)(D) as a failure that could have prevented fulfillment of a safety feature needed to mitigate the consequences of an accident. The NRC was notified via an ENS call at 0008 on 5/31/02.

This event is considered a safety system functional failure.

C. CAUSE OF EVENT

The root cause was a poor design choice by the vendor, Basler Electric Co., because the potentiometer used in the R3 application is a low-cost component that is frequently noisy even when new.

D. SAFETY ANALYSIS

The safety significance of the event was minimal. The 2B DG was out-of-service for maintenance when the failure occurred, and was restored to operable status within the Technical Specification allowed outage time. Since the 2B DG provides emergency power to High Pressure Core Spray, this event is reportable under 10 CFR 50.73(a)(2)(v)(D) as a condition that could have prevented fulfillment of a safety function. Normal AC power was available to HP at all times.

Had the R3 potentiometer failed with the 2B diesel generator operating in an emergency mode (isochronous), the failure would have resulted in actual changes

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

in bus voltage, which could have been outside Technical Specification tolerances. Had this resulted in the loss of HP, all other ECCS systems and Reactor Core Isolation Cooling (RI) [BN] were operable and available to mitigate the consequences of an accident.

E. CORRECTIVE ACTIONS

Corrective Actions:

1. The R3 potentiometer and the MOP were replaced, and the 2B DG was tested and returned to service (Complete).

2. Operability tests were conducted in accordance with TS 3.8.1., RA B.3.1. on the 0, 1A, 1B, and 2A DGs, in order to determine that the operable DGs were not inoperable due to a common mode failure (Complete).

Corrective Action to Prevent Recurrence:

3. New periodic maintenance items were created to wipe the R3 potentiometers and check them for proper operation every 24 months (Complete).

4. System Engineering will investigate an alternative to the Basler R3 potentiometer through Engine Systems, Inc. (ESI), the LaSalle EMD diesel vendor (AT# 110032-17).

F. PREVIOUS OCCURRENCES

There was a previous failure of the R3 potentiometer in 1995, on the 2B DG. The failure occurred at approximately 15 years of service life. The corrective actions included replacement of the R3 potentiometers in all five DGs.

In 1999, the entire voltage regulator was changed out on the 2B DG, and shortly thereafter the R3 potentiometer failed. This was considered an infant component failure, and the potentiometer was replaced. In 2001, a faulty R3 potentiometer was identified on the 2A DG during replacement of a MOP.

The information available prior to the 2002 R3 failure indicated that the maintenance being performed was adequate to ensure the reliability of the voltage regulator.

G. COMPONENT FAILURE DATA

Manufacturer: Basler Electric Co.
Potentiometer: 150 ohms, 4 watt, 270° range of operation
Part#: 04768