Exelon Nuclear

Exelon Generation Company, LLC
LaSalle County Station
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July 20, 2009

10 CFR 50.73

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

LaSalle County Station, Units 1 and 2
Facility Operating License No. NPF 11 and 18
NRC Docket No. 50-373 and 50-374

Subject: Licensee Event Report

In accordance with 10 CFR 50.73 (a)(2)(iv)(A), Exelon Generation Company, (EGC), LLC, is submitting Licensee Event Report Number 09-001-00, Docket No. 050-373.

Should you have any questions concerning this letter, please contact Mr. Terrence W. Simpkin, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

David P. Rhoades
Plant Manager
LaSalle County Station

Attachment: Licensee Event Report

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 80 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
LaSalle County Station Unit 1	05000373	1 OF 4

4. TITLE
Automatic Reactor Scram Due to Failure of Main Power Transformer Surge Arrestor

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
									LaSalle County Station Unit 2	05000374
05	21	2009	2009	- 001 -	00	07	20	2009	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)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☒ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Cindy Snyder, Design Engineering	815-415-2919

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	EL	LAR	Joslyn	Y					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On May 21, 2009, at 1635 CDT, LaSalle Unit 1 automatically scrammed from 100% power. The scram was due to a generator lockout signal caused by a failure of the surge arrester on the 'A' phase of the Unit 1 West Main Power Transformer (1W MPT).

The safety significance of this event was minimal. All control rods fully inserted, all systems responded as expected to the scram, and Emergency Core Cooling Systems were not challenged. The voltage transient caused by the arrestor failure resulted in a number of invalid alarms and isolations on both Units.

The cause of the surge arrester failure was determined to be a manufacturing defect. Corrective actions included verifying that the 1W MPT had not been damaged by the event, and replacing the failed surge arrester. Additionally, future procurements of station surge arresters will require that the vendor supply the test data.

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NARRATIVE

A. PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 3489 Megawatts Thermal Rated Core Power
CONDITION PRIOR TO EVENT

Unit(s): 1
Reactor Mode(s): 1
Mode(s) Name: Power Operation

Event Date: 5/21/09
Power Level(s): 100

Event Time: 1635

B. DESCRIPTION OF EVENT

On May 21, 2009, at 1635 CDT, LaSalle Unit 1 automatically scrammed from 100% power. The scram was due to a generator lockout signal caused by a failure of the surge arrester on the 'A' phase of the Unit 1 West Main Power Transformer (1W MPT) (MP)[EL]. Deluge protection of the 1W MPT actuated and no fire resulted from the arc caused by the surge arrester failure.

Following the scram, reactor water level was restored using the Motor Driven Reactor Feed Pump (FW)[SJ], and pressure control was established with the Main Condenser (CD)[SG] via the turbine bypass valves.

The surge arrester failure caused a voltage transient on both LaSalle Units. On Unit 2, the 24B and 25B Low Pressure Feedwater Heaters (HD)[SM] and the 24C Low Pressure Heater Normal Drain tripped, which forced a reduction in reactor power to approximately 85%. The voltage transient also resulted in a number of other non-valid isolation signals, including Reactor Water Cleanup (RT) [CE] and Reactor Building Ventilation (VR)[VA]. The VR system isolated on both Units 1 and 2.

Unit 2 returned to full power on May 22, 2009, at 1100 CDT. Following replacement of the 1W MPT 'A' phase surge arrester and verification that the MPT had not been damaged, Unit 1 was restarted on May 23, 2009, and was synchronized to the grid on May 25, 2009. The Unit returned to full power at 1412 CDT on May 27, 2009.

An Emergency Notification System call was made at 1946 CDT on May 21, 2009, in accordance with 10 CFR 50.72(b)(2)(iv)(B) as an event or condition that resulted in actuation of the reactor protection system when the reactor was critical.

C. CAUSE OF EVENT

A forensic analysis was performed on the failed surge arrester. The analysis determined that the root cause was a manufacturing defect. The glass tape used to hold together the metal oxide blocks inside the arrester was folded and wedged between the metal oxide blocks in two

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different areas, which prevented face-to-face contact between the blocks. As a consequence, under normal operating conditions an air gap existed between the blocks, leading to uneven current flow through adjacent blocks. Surges from normal switching operation and lightning strikes in the years following the installation caused punctures near the edge of the affected blocks.

Although all arresters are tested prior to shipping, the defect in this arrester was either not detected by the factory testing or the defective arrester was not discarded upon identification of the defect. It is the opinion of the vendor that this defect should have been identified in production testing. Retrieval of the original Joslyn test reports is no longer possible. The arresters were satisfactorily Doble tested on site prior to installation, but this test was not capable of identifying the defect.

As a result of Doble test results in 2004, the original 1W MPT 'A' phase surge arrester was replaced, along with the 1 East (1E) MPT 'A' phase surge arrester. The Joslyn Manufacturing Co. (now MacLean Power System) ZSH series (MOV-Metal Oxide Varistor) station class surge arresters were selected to replace the original Westinghouse CPL series silicon carbide gapped surge arresters because they use metal oxide technology, which represented an improved design over the silicon carbide gap type arresters.

These arresters performed without problems until the day of the event. On April 30, 2009, a temperature scan of the Unit 1 transformers was performed and no differential temperatures were noted on either the MOV or silicon carbide arresters. Due to the manufacturer defect, degradation of the arrester would have started with the installation in 2004, but the degradation did not result in significant heat generation due to the low current in the arrester. Therefore, thermography did not identify the defect.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. All control rods fully inserted and all systems responded as expected to the scram. The Emergency Core Cooling Systems were not challenged. This event did not meet the NEI 99-02 definition of an unplanned scram with complications. There were no safety system functional failures.

E. CORRECTIVE ACTIONS

Corrective Actions:

- The 'A' phase arresters were replaced on both the 1E and 1W MPT.
- The 1E and 1W MPTs were tested to verify that they had not been degraded as a result of the transient.

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Corrective Action to Prevent Recurrence:

- Procurement requirements will be changed to require that vendor test data be supplied for future station surge arrester purchases. (AT# 923160-15)

F. PREVIOUS OCCURENCES

LaSalle Station has not previously experienced a failure of a surge arrester.

G. COMPONENT FAILURE DATA

Joslyn ZSH Metal Oxide Arrester with 264kV Rating