



Exelon Generation®

LaSalle Station

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10 CFR 50.73

RA14-034

June 27, 2014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Licensee Event Report 2014-003-00 Secondary Containment Inoperable
Due to Interlock Doors Open

In accordance with 10 CFR 50.73(a)(2)(v)(C) and (D), Exelon Generation Company (EGC), LLC, is submitting Licensee Event Report Number 2014-003-00 for LaSalle County Station Units 1 and 2.

There are no regulatory commitments in this letter. Should you have any questions concerning this report, please contact Mr. Guy V. Ford, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Peter J. Karaba
Site Vice President
LaSalle County Station

Enclosure: Licensee Event Report

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



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollections.Resource@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.

1. FACILITY NAME

LaSalle County Station Unit 1

2. DOCKET NUMBER

05000373

3. PAGE

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4. TITLE

Secondary Containment Inoperable Due to Interlock Doors Open

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
04	30	2014	2014	003	00	06	27	2014	LaSalle County Station Unit 2	05000374
									N/A	N/A

9. OPERATING MODE		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<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)	
10. POWER LEVEL	<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 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 checked="" 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 or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER (Include Area Code)
Joe Kutches, Maintenance Director	(815) 415-2500

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	NG	IEL	SDC	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 April 30, 2014, Unit 1 was in Mode 1 at 100% power and Unit 2 was in Mode 5 with fuel moves in progress for maintenance outage L2M17. At 1037 hours CDT, it was reported that both air lock doors on the Unit 2 Auxiliary Building 710' elevation between the Chemistry Hot Lab and the Reactor Building were open at the same time for approximately 5 seconds. While both interlock doors were open, Technical Specification (TS) Surveillance Requirement (SR) 3.6.4.1.2 ("Verify one secondary containment access door in each access opening is closed") was not met for both Units 1 and 2. Secondary containment was declared inoperable for the time that both interlock doors were open. TS 3.6.4.1 Required Actions (RA) C.1, C.2 and C.3 to immediately suspend irradiated fuel movements, core alterations, and OPDRVs on Unit 2 and RA A.1 to restore secondary containment to OPERABLE status within 4 hours were entered and exited at 1037 CDT on April 30, 2014.

The cause of the event was determined to be that the single mounting bolt holding the armature plate to door #247 had become disengaged and the plate had fallen to the floor, causing the electromagnetic locking function to fail. The armature mounting bolt had not been properly tensioned and Loctite had not been used during installation of the armature plate. Corrective actions were to reinstall the armature plate with proper tensioning of the mounting bolt and with Loctite applied to the threads. All other susceptible armature plate mountings at LaSalle were inspected and verified for proper torque and use of Loctite.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@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.

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LaSalle County Station, Units 1 and 2	05000373	2014	- 003	- 00	2 OF 5

NARRATIVE

LaSalle County Station Units 1 and 2 are General Electric Company Boiling Water Reactors with 3546 Megawatts Rated Core Thermal Power.

A. CONDITION PRIOR TO EVENT:

Unit(s): 1 / 2	Event Date: April 30, 2014	Event Time: 1037 CDT
Reactor Mode(s): 1/5	Mode(s) Name: Power Operation/Refueling	Power Level: 100% / 0%

B. DESCRIPTION OF EVENT:

On April 30, 2014, Unit 1 was in Mode 1 at 100% power and Unit 2 was in Mode 5 with fuel moves in progress for maintenance outage L2M17. At 1037 hours CDT, it was reported that both air lock doors on the Unit 2 Auxiliary Building 710' elevation between the Chemistry Hot Lab and the Reactor Building were open at the same time for approximately 5 seconds.

While both interlock doors were open, Technical Specification (TS) Surveillance Requirement (SR) 3.6.4.1.2 ("Verify one secondary containment access door in each access opening is closed") was not met for both Units 1 and 2. Secondary containment (CS) [NG] was declared inoperable for the time that both interlock doors were open. TS 3.6.4.1 Required Actions (RA) C.1, C.2 and C.3 to immediately suspend irradiated fuel movements, core alterations, and OPDRVs on Unit 2 and RA A.1 to restore secondary containment to OPERABLE status within 4 hours were entered and exited at 1037 CDT on April 30, 2014.

This occurrence is reportable under 10 CFR 50.73(a)(2)(v)(C) and (D) as an event or condition that could have prevented the fulfillment of the safety function of the structures or systems that are needed to control the release of radioactive material and to mitigate the consequences of an accident. An ENS report was made to the NRC (EN# 50076) at 1636 CDT on April 30, 2014, pursuant to 10 CFR 50.72(b)(3)(v)(C) and (D).

An Engineering Evaluation was performed that determined that this event did not meet the NEI 99-02 definition of a Safety System Functional Failure (SSFF).

C. CAUSE OF EVENT:

Investigation determined that the electromagnetic lock on air lock door #247 was not functioning. This lock had been installed on February 3, 2014, as a modification to address recurrent problems in maintaining one secondary containment access door closed in accordance with TS SR 3.6.4.1.2. The lock uses a strong electromagnet that attracts a steel armature plate mounted on the door, which prevents the door from opening when the other airlock door is open. The single mounting bolt holding the armature plate to door #247 had become disengaged and the plate had fallen to the floor, causing the locking function to fail.

Further investigation determined that the armature mounting bolt had not been properly tensioned and Loctite had not been used during installation of the armature plate. This allowed the bolt to gradually work its way loose during normal usage of the door.

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D. SAFETY ANALYSIS:

The safety significance of this event was minimal. The Reactor Building-to-outside differential pressure remained negative throughout the period that the secondary containment was inoperable. The secondary containment was inoperable for approximately 5 seconds, which was significantly less than the four-hour Completion Time to restore the secondary containment to operable status allowed by TS 3.6.4.1 Required Action A.1.

The function of the secondary containment is to contain, dilute, and hold up fission products that may leak from the primary containment following a Design basis Accident (DBA). Engineering Evaluation (EC 396711) was performed to show that this event had no impact on the safety function associated with secondary containment.

The time that both doors were simultaneously opened was less than 10 seconds. This event did not result in the reactor enclosure differential pressure dropping below the design bases set point of -0.25 inches w.g. Both the inner and outer doors were promptly closed by station personnel, which ended the event. This event did not involve any kind of door or airlock malfunction or failure. Additionally, both the inner and outer doors were closed by normal expected means and were capable of remaining closed as designed.

Total calculated doses throughout the event at the Exclusion Area Boundary (EAB), Low Population Zone (LPZ), and Control Room (CR) are 10.4%, 1.1% and 85.4%, respectively, of the regulatory limits. For this evaluation, the total dose in this calculation is conservatively assumed to be released during the unfiltered 780 seconds time period prior to SBTG drawdown and filtration; this discounts the initial two minutes of the event, as no release has taken place. The dose was then evaluated during this time period as a proportion, based on door opening time, to evaluate an anticipated release through the opened secondary containment doors.

During the DBA LOCA, should an event occur with both secondary containment doors open simultaneously for 30 seconds or less, this would result in a potential dose increase to the three zones (EAB, LPZ, and CR) of approximately 3.85%. The 3.85% decrease in total margin still maintains adequate overall margin to the regulatory limits at the three areas. The dose was conservatively assumed to be unfiltered and released during the entire 30 second event; therefore, the time of equalization will have no effect on the radiological conclusions.

EC 396711 also evaluated the pressure impact on the secondary containment and the ability of the SBTG system to achieve the TS required negative pressure. The results of the evaluation show SBTG would restore secondary containment pressure within 3 minutes, which is well below the 15 minute maximum drawdown time required by TS.

Based on the short duration of door opening (approximately 5 seconds), no material condition preventing door closure or maintaining the doors closed and attendance by knowledgeable personnel who closed the doors immediately, the secondary containment safety function was maintained.

E. CORRECTIVE ACTIONS:

- The armature plate was reinstalled with proper torque and the use of Loctite.
- The five other doors with the same armature plate installation were inspected for tightness, and Loctite was applied to the mounting bolt threads.

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F. PREVIOUS OCCURRENCES:

LER 2014-001-00

On February 18, 2014, Unit 1 was in Mode 5 with fuel moves in progress during refueling outage L1R15, and Unit 2 was in Mode 1 at 100% power. At 1820 hours CST, it was reported that both air-lock doors of the Unit 2 Reactor Building 710' elevation between the Unit 2 diesel generator corridor and the Unit 2 Reactor Building were open at the same time for approximately 3 seconds. While both interlock doors were open, TS SR 3.6.4.1.2 ("Verify one secondary containment access door in each access opening is closed") was not met. Secondary containment was declared inoperable for the time that both interlock doors were open. TS 3.6.4.1 Required Action (RA) C.1 to suspend fuel movements on Unit 1 and RA A.1 to restore secondary containment to OPERABLE status within 4 hours were entered and exited at 1820 CST on February 18, 2014.

The cause of the event was degradation of the door closure mechanism and door frame seal. A contributing cause was a less than robust design of the door interlock assembly. Corrective actions from the previous occurrences to identify, procure and install a more robust interlock assembly design were still in progress at the time of the event. Additional corrective actions included creating a periodic preventative maintenance task to inspect, tighten, and replace fasteners as necessary.

LER 2013-007-01

On October 22, 2013, both Units 1 and 2 were in Mode 1 at 100% power. At 1129 hours CDT, it was reported that both air lock doors on the Unit 1 Reactor Building 710' elevation between the Chemistry Hot Lab and the Reactor Building were open at the same time for approximately 10 seconds. While both interlock doors were open, TS SR 3.6.4.1.2 ("Verify one secondary containment access door in each access opening is closed") was not met. Secondary containment was declared INOPERABLE for the time that both interlock doors were open. TS 3.6.4.1 Required Action A.1 for both Units 1 and 2 to restore secondary containment to OPERABLE status within 4 hours was entered and exited at 1129 CDT on October 22, 2013.

The cause of the event was a less than robust design of the door interlock assembly. Troubleshooting found that the mounting fasteners that secure the entire locking assembly to the frame of door # 226 (Reactor Building side of the interlock) were loose, which prevented the electro-mechanical solenoid operated bolt from properly aligning with the door-mounted catch. This misalignment prevented the bolt from entering the catch on door # 226 when door # 225 (Chemistry Hot Lab side) was opened. This malfunction resulted in the capability to open both interlock doors at the same time, and was similar to a previous occurrence on February 28, 2013.

LER 2013-001-02

On February 28, 2013, Unit 1 was in Mode 1 at 100% power and Unit 2 was in Mode 5 for refueling outage L2R14. At 0400 hours CST, it was reported that both air lock doors on the Unit 1 Reactor Building 710' elevation between the Chemistry Hot Lab and the Reactor Building were open at the same time for approximately 10 seconds. While both interlock doors were open, TS SR 3.6.4.1.2 ("Verify one secondary containment access door in each access opening is closed") was not met for Unit 1. Secondary containment was declared INOPERABLE for the time that both interlock doors were open. TS 3.6.4.1 Required Action A.1 to restore secondary containment to OPERABLE status within 4 hours was entered and exited for Unit 1 at 0400 CST on February 28, 2013.

The cause of the event was determined to be a less than robust design of the door interlock assembly. Troubleshooting found that the mounting fasteners that secure the entire locking assembly to the frame of door # 226 (Reactor Building side of the interlock) were loose, which prevented the electro-mechanical solenoid

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operated bolt from properly aligning with the door-mounted catch. This misalignment prevented the bolt from entering the catch on door # 226 when door # 225 (Chemistry Hot Lab side) was opened. This malfunction resulted in the capability to open both interlock doors at the same time.

This occurrence was similar to the October 2013 event. In addition to repairing the interlock assembly by tightening the fasteners, actions were initiated to periodically inspect the assemblies and to identify and install a more robust design. The new design had been identified but not installed when the October 2013 event occurred.

LER 2012-001-00

On September 18, 2012, Units 1 and 2 were in Mode 1 at 100% power. At 0115 hours CDT, an Equipment Operator (EO) reported the Unit 2 Reactor Building 761' elevation Interlock Doors 424/314 were both open at the same time for approximately 10 seconds. During the time that both interlock doors were open, TS SR 3.6.4.1.2 ("Verify one secondary containment access door in each access opening is closed") was not met. The secondary containment was declared INOPERABLE for the time that both interlock doors were open. LaSalle Station entered and exited TS 3.6.4.1 Required Action A.1 for both Units 1 and 2 to restore secondary containment to OPERABLE status within 4 hours.

The cause of the event was determined to be the solenoid bracket being loose on Unit 2 Reactor Building 761' interlock door 424. Two screws that hold the locking solenoid bracket in place were found loose. The two loose screws on the locking solenoid mounting bracket caused the electric lock assembly to become misaligned. The misalignment of the electric lock assembly prohibited the locking solenoid plunger from being fully engaged with the door catch and damaged the limit switch, which resulted in the capability to open both interlock doors at the same time.

G. COMPONENT FAILURE DATA:

Security Door Controls Model EMLock 1511D, with Model AR11YD Armature Mounting Plate