Exelon Generation

10CFR50.73

LG-13-157
December 26, 2013

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

Limerick Generating Station, Unit 2
Facility Operating License No. NPF-85
NRC Docket No. 50-353

Subject: LER 2013-003-00, Condition That Could Have Prevented Fulfillment of the Reactor Enclosure Secondary Containment Integrity Safety Function

This Licensee Event Report (LER) addresses a condition that could have prevented fulfillment of the reactor enclosure secondary containment integrity safety function. Both airlock doors on one reactor enclosure airlock were briefly opened simultaneously due to the airlock design and a worker failure to verify a door latch was fully engaged prior to exiting the airlock. This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(v)(C).

There are no commitments contained in this letter.

If you have any questions, please contact Robert B. Dickinson at (610) 718-3400.

Respectfully,

For TJD

Thomas J. Dougherty
Vice President – Limerick Generating Station
Exelon Generation Company, LLC

cc: Administrator Region I, USNRC
USNRC Senior Resident Inspector, LGS

IE22
NRR

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

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 Section (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.

LICENSEE EVENT REPORT (LER)

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

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4. TITLE

Inoperable Reactor Enclosure Secondary Containment Integrity Due to Open Airlock

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
										05000
10	30	2013	2013	- 003 -	00	12	26	2013	FACILITY NAME	DOCKET NUMBER 05000

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

NAME	TELEPHONE NUMBER *(Include Area Code)*
Robert B. Dickinson, Manager – Regulatory Assurance	610-718-3400

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	NH	DR	W302	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)*

A worker in the reactor enclosure was using the equipment airlock when a simultaneous opening of both airlock doors occurred. The breach occurred when the outboard door was opened with the inboard door not properly latched. Both doors were closed in less than 10 seconds and the breach of secondary containment was terminated. The cause of the airlock breach is the reactor enclosure airlock design does not prevent both doors from being opened simultaneously. A contributing cause was the airlock door self-closing feature failed to fully close and latch the airlock door and the worker did not properly verify the door was latched following use. The airlock door self-closing feature was verified to be working properly but may require assistance to fully latch. A reactor enclosure airlock design change will be evaluated.

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Unit Conditions Prior to the Event

Unit 2 was in Operational Condition (OPCON) 1 (Power Operation) at 100% power. There were no other structures, systems or components out of service that contributed to this event.

Description of the Event

On Wednesday, October 30, 2013, Limerick Unit 2 was operating at 100% power. At 1550 hours, the reactor enclosure low delta pressure alarm (EIIS:ALM) actuated and reactor enclosure pressure was observed recovering to a normal pressure of 0.33 inch of vacuum water gauge.

An investigation identified that a worker in the reactor enclosure (EIIS:NH) on the 313 foot elevation was using the equipment airlock when an opening of both airlock doors (EIIS:DR) occurred. The worker was exiting the reactor enclosure and entering the fan room using the airlock when the breach occurred. The worker did not effectively verify that the inboard door latch was engaged when the door was closed. The worker then opened the outboard door and the inboard door also opened due to the differential pressure on the door. Both doors were closed in less than 10 seconds and the breach of secondary containment was terminated. The worker notified Operations shift management of the unexpected containment breach.

Technical Specification (TS) 3.6.5.1.1 Reactor Enclosure Secondary Containment Integrity surveillance requirement 4.6.5.1.1.a requires verification that reactor enclosure pressure is greater than or equal to 0.25 inch of vacuum water gauge which is performed on a 24 hour frequency. The TS surveillance requirement 4.6.5.1.1.b.2 requires at least one door in each access to the reactor enclosure be verified closed which is performed on a 31 day frequency. TS 3.6.5.1.1 is applicable in operational conditions (OPCON) 1, 2 and 3.

This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(v)(C) for a condition that could have prevented the fulfillment of the safety function of structures or systems needed to control the release of radioactive material.

Analysis of the Event

There was no actual safety consequence associated with this event. The potential safety consequences of this event were minimal. Both

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doors on the airlock were open simultaneously for less than 10 seconds.

To prevent an unplanned breach of secondary containment each reactor enclosure airlock is equipped with door open indicating lights which are used to locally verify the door status. If both doors are opened simultaneously a local alarm is actuated. If both doors remain open for greater than 10 seconds an alarm is actuated in the main control room and operators are dispatched to verify the airlock doors closed.

UFSAR 6.2.3.2.1 describes the secondary containment design. The reactor enclosure secondary containment (Zones I and II) are designed to limit the inleakage to 200% of their zone free volume per day, and the refueling area secondary containment (Zone III) is designed to limit the inleakage to 50% of its zone free volume per day. These inleakage rates are based on a negative interior pressure of 0.25 in wg, while operating the standby gas treatment system (SGTS). Following a LOCA the affected zone is maintained at this negative pressure by operation of the SGTS.

Cause of the Event

The cause of the airlock breach is the reactor enclosure airlock design does not prevent both doors from being opened simultaneously. A contributing cause was the airlock door self-closing feature failed to fully close and latch the airlock door and the worker did not properly verify the door was latched following use.

Corrective Action Completed

The airlock door self-closing feature was functionally tested.

Corrective Action Planned

A reactor enclosure airlock design change will be evaluated.

Previous Similar Occurrences

Unit 2 LER 2013-002 was submitted due to a reactor enclosure airlock breach caused by a non-functional airlock door open indicating light not providing the correct door status. There have also been previous similar occurrences in the prior three years based on a review of the operator logs. The events were identified by an actuation of the airlock seal open alarm which indicates that both airlock doors were open for a period exceeding 10 seconds.

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Component Data

Component Number	Door-560
Component Name	Reactor Enclosure Fan Room Door
Manufacturer	Woolley
Model Number	7790 DWG/HW SET B