



10CFR50.73

LG-14-043
March 28, 2014

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

Limerick Generating Station, Unit 1
Facility Operating License No. NPF-39
NRC Docket No. 50-352

Subject: LER 2014-003-00, 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. The airlock design does not prevent simultaneous door opening. 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,

Original signed by

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

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

NRC FORM 366 (01-2014)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104		EXPIRES: 01/31/2017						
 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 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.								
1. FACILITY NAME Limerick Generating Station, Unit 1				2. DOCKET NUMBER 05000352		3. PAGE 1 OF 4						
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	
02	06	2014	2014	003	00	03	28	2014	FACILITY NAME		DOCKET NUMBER	
											05000	
											05000	
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)	
100			<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 type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A	
12. LICENSEE CONTACT FOR THIS LER												
FACILITY NAME Robert B. Dickinson, Manager – Regulatory Assurance									TELEPHONE NUMBER (Include Area Code) 610-718-3400			
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			
14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO						15. EXPECTED SUBMISSION DATE			MONTH	DAY	YEAR	
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)												
<p>A worker allowed both doors of a reactor enclosure personnel airlock to be open simultaneously. Both doors were closed in less than 10 seconds. This event resulted in a brief inoperability of reactor enclosure secondary containment integrity. The cause of this event was failure of the worker to self check. The worker opened the outboard airlock door prior to allowing the inboard airlock door to go full closed. This event was not prevented by the design of the reactor enclosure airlocks. The affected airlock doors were closed to restore reactor enclosure secondary containment integrity.</p>												

**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.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
		2014	- 003	- 00	
Limerick Generating Station, Unit 1	05000352				2 OF 4

NARRATIVE

Unit Conditions Prior to the Event

Unit 1 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 Thursday, February 6, 2014, Limerick Unit 1 was operating at 100% power. At 1030 hours, the main control room supervisor was notified that both doors (EIIS:DR) on one reactor enclosure airlock had been briefly opened. The reactor enclosure low pressure alarm (EIIS:ALM) did not actuate during the event and the reactor enclosure pressure did not drop below the Technical Specification (TS) limit of 0.25 inch of vacuum water gauge. However, reactor enclosure secondary containment (EIIS:NH) integrity was declared inoperable for the period when both doors were open.

An investigation confirmed that a worker opened the outboard airlock door on the reactor enclosure 201 foot elevation airlock for a period of less than 10 seconds prior to allowing the inboard airlock door to go full closed. The worker immediately re-closed both doors and the breach of secondary containment was terminated. The worker notified Operations shift management of the containment breach.

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 on a 24-hour frequency. 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 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.

NEI 99-02 Revision 7, Regulatory Assessment Performance Indicator Guideline, section 2.2 Mitigating Systems Cornerstone, Safety System Functional Failures, Clarifying Notes, states the following:

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Limerick Generating Station, Unit 1	05000352	YEAR	SEQUENTIAL NUMBER	REV NO.	3 OF 4
		2014	- 003	- 00	

NARRATIVE

Engineering analyses: events in which the licensee declared a system inoperable but an engineering analysis later determined that the system was capable of performing its safety function are not counted, even if the system was removed from service to perform the analysis.

This event will not be reported in the NRC performance indicator (PI) for safety system functional failures (SSFF) since an engineering analysis (technical evaluation) was performed which determined that the system was capable of performing its safety function during events when the airlock was open for less than 10 seconds. The post-LOCA dose calculation does not credit reactor enclosure secondary containment integrity for mitigation of on-site and off-site doses for the first 15.5 minutes of the event. Therefore, this event is bounded by the existing dose calculation.

Analysis of the Event

There was no actual safety consequence associated with this event. The potential safety consequences of this event were minimal. Both doors on the airlock were open simultaneously for less than 10 seconds.

To prevent a 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 are closed.

UFSAR Section 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 this event was failure of the worker to self check. The worker opened the outboard airlock door prior to allowing the inboard airlock door to go full closed. This event was not prevented by the design of the reactor enclosure airlocks since

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

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Limerick Generating Station, Unit 1	05000352	2014	- 003	- 00	4 OF 4

NARRATIVE

there is no mechanical interlock and the door open indicating light does not prevent simultaneous opening of both airlock doors.

Corrective Action Planned

The affected airlock doors were closed to restore reactor enclosure secondary containment integrity.

Previous Similar Occurrences

Unit 2 LER 2014-002, Unit 2 LER 2014-001, Unit 1 LER 2014-002, Unit 1 LER 2014-001, and Unit 2 LER 2013-003 were submitted due to reactor enclosure airlock breaches allowed by the airlock design. 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.