

December 3, 2012

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

Limerick Generating Station, Units 1 and 2  
Facility Operating License Nos. NPF-39 and NPF-85  
NRC Docket Nos. 50-352 and 50-353

Subject: LER 2012-009-00, Unanalyzed Condition Due to Fire Safe Shutdown (FSSD)  
Analysis Error

This Licensee Event Report (LER) addresses a condition that resulted in an unanalyzed condition that could have significantly degraded plant safety. The single credited FSSD method for a specific fire area was identified as having an unprotected control cable for an emergency diesel generator output breaker that could allow a spurious closure of the breaker during a fire.

This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(ii)(B).

There are no regulatory 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

**LICENSEE EVENT REPORT (LER)**  
(See reverse 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 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.

<b>1. FACILITY NAME</b> Limerick Generating Station, Unit 1	<b>2. DOCKET NUMBER</b> 05000352	<b>3. PAGE</b> 1 OF 3
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**4. TITLE**  
Unanalyzed Condition Due to a Fire Safe Shutdown Analysis Error

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
10	03	2012	2012	009	00	12	03	2012	Limerick Unit 2	05000353
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)									
	<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)						
<b>10. POWER LEVEL</b>  100	<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 checked="" 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)						
	<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 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**

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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH:    DAY:    YEAR:
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**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

An unprotected control cable was identified during a detailed logic and cable routing review for the Multiple Spurious Operations (MSO) 5f scenario. The review identified that a D22 Emergency Diesel Generator (EDG) output breaker control cable could fail due to postulated fire damage in fire area 067W. The event was caused by an error during the Fire Safe Shutdown (FSSD) analysis. The D22 EDG output breaker control logic was rewired to eliminate the deficiency.

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**NARRATIVE**

Unit Conditions Prior to the Event

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

Description of the Event

On Wednesday, October 3, 2012, Unit 1 and Unit 2 were operating at 100% power and a detailed logic and cable routing review for the Multiple Spurious Operations (MSO) 5f scenario was in progress. The review identified that a D22 Emergency Diesel Generator (EDG) (EIIS:EK) output breaker (EIIS:BKR) control cable (EIIS:CBL) could fail due to postulated fire damage in fire area 067W. At 1710 hours, an initial fire watch was performed in the affected area. At 1742 hours, the control room supervisor (CRS) posted an hourly fire watch in the affected area.

On Saturday, November 3, 2012, the affected EDG breaker was rewired, to eliminate the condition and the fire watch was terminated. During closure reviews for the MSO project, to confirm MSO scenario resolution, detailed reviews of all applicable MSO fire scenarios were completed and no additional FSSD issues were identified.

An 8-hour NRC ENS notification was required by 10CFR50.72(b)(3)(ii)(B) since this event involved an unanalyzed condition that significantly degraded plant safety. The ENS notification (48372) was completed on Wednesday, October 3, 2012, at 2022 EDT. This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(ii)(B) due to the unanalyzed condition.

The NRC ENS submitted at the time of the event also conservatively listed 10CFR50.72(b)(3)(ii)(A) as a reporting criterion. It was later determined that the condition of the nuclear power plant, including its principle safety barriers, was not seriously degraded by this event. There was no degradation of fuel cladding, primary coolant boundary, or primary containment as a result of this event. Therefore, the prior ENS report related to this criterion is being retracted.

Analysis of the Event

There was no actual safety consequence associated with this event. The potential safety consequences of this event could have been significant since the inadvertent closure of an EDG output breaker

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**NARRATIVE**

could result in unavailability of the single credited 4 kV safeguard power source during a fire in the affected fire area.

This postulated spurious EDG output breaker closure could open the credited offsite source breaker on overcurrent and lockout the credited 4kV bus. The existing fire safe shutdown analysis should have identified that this cable needed to be protected in order to credit the 4kV safeguard bus in fire area 067W.

Fire Area 067W is located in the western portion of the Unit 2 reactor enclosure safeguard systems access area on the 217 foot elevation. This fire area credits FSSD Method C. If the credited 4kV safeguard bus fails due to a single spurious fire induced D22 EDG output breaker closure, it will prevent the "2B" low pressure coolant injection (LPCI) system injection which is credited approximately 20-25 minutes into the post fire event for reactor pressure vessel (RPV) inventory control and cooling.

This event resulted in a non compliance with the current FSSD analysis documented in the fire protection evaluation report and fire protection program which is the current licensing basis (CLB). The CLB assumes a single spurious actuation of safe shutdown components during any single deterministic fire event for plant areas as documented in the Limerick UFSAR FPER section 9A.5. The identified error could result in a single spurious actuation that could impact the ability to safely shutdown.

**Cause of the Event**

The event was caused by an error during the FSSD analysis.

**Corrective Action Completed**

The D22 EDG output breaker control logic was rewired to eliminate the deficiency.

**Previous Similar Occurrences**

There is no previous similar occurrence of a FSSD analysis error that resulted in an unanalyzed condition that significantly degraded plant safety during the past 5 years.