



10CFR50.73

LG-15-073
June 12, 2015

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

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

Subject: LER 2015-002-00, Valid Manual Actuation of the Reactor Protection System
While Shutdown

This Licensee Event Report (LER) addresses a valid manual actuation of the reactor protection system (RPS) during a refueling outage. The manual scram was directed by the scram reset procedure when a failed intermediate range monitor (IRM) channel prevented reset of the B2 RPS logic.

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

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

Frank Sturniolo
Acting Site Plant Manager – 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 2				2. DOCKET NUMBER 05000353		3. PAGE 1 OF 3								
4. TITLE Valid Manual Actuation of the Reactor Protection System While Shutdown														
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	13	2015	2015 - 002 - 00			06	12	2015	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)											
3			<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 000			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input checked="" 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														
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	MANU-FACTURER	REPORTABLE TO EPIX										
E	IG	JI	G080	Y										
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>An unplanned valid manual actuation of the reactor protection system (RPS) was initiated with the unit shutdown for a refueling outage. The manual scram was directed by procedure when a scram reset attempt failed to fully reset the RPS logic due to a failure of the 2H intermediate range monitor (IRM) channel. The cause of the event was age related degradation and failure of the 2H IRM K50H relay. The 2H IRM K50H relay was replaced. The scram reset procedure (GP-11) will be revised to provide explicit step-by-step instructions regarding verification that all scram conditions are clear.</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.	
		2015	- 002	- 00	
Limerick Generating Station, Unit 2	05000353				2 OF 3

NARRATIVE**Unit Conditions Prior to the Event**

Unit 2 was in Operational Condition (OPCON) 3 (Hot Shutdown) with reactor coolant temperature at approximately 477 degrees Fahrenheit. Reactor pressure was approximately 538 psig with reactor pressure vessel (RPV) cooldown in progress. There were no structures, systems or components out of service that contributed to this event.

Description of the Event

On April 13, 2015, a manual scram was inserted as part of the planned shutdown for the 2R13 refueling outage. During operations to reset the scram, the 'B' channel of the Reactor Protection System (RPS) (EIS:JC) was unable to be reset and a second manual scram was inserted per procedure GP-11, "Scram Reset." The second manual scram was determined to be reportable via an 8-hour Emergency Notification System (ENS) due to it not being part of a pre-planned testing sequence.

The failure of the 'B' channel of RPS was determined to be due to an equipment deficiency resulting from a logic failure for the '2H' Intermediate Range Monitor (IRM). The scram reset procedure has the Reactor Operator (RO) verify that all RPS trip signals are clear; however, the specific methodology to "verify all RPS trip signals are clear" is not explicitly stated within the procedure. The RO then attempted to reset the scram which was unsuccessful due to the 2H IRM related equipment failure. The K50H relay contact for the 2H IRM remained open providing the 'B' RPS system with a trip signal. The failure mode was such that it did not provide any indication of failure on the Main Control Room bench-board IRM indicators. Subsequent troubleshooting identified the 2H IRM logic contact that failed to open was preventing the scram reset. The '2H' IRM was bypassed from RPS using the installed bypass joystick and the full scram was reset.

An eight-hour ENS notification (#50981) was completed on Monday, April 13, 2015, at 0956 hours as required by 10CFR50.72(b)(3)(iv)(a) for a valid manual actuation of the RPS system. This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv)(A) for a manual actuation of the RPS system.

Analysis of the Event

There was no actual safety consequence associated with this event. The potential safety consequences of this event were minimal. The 2H IRM trip channel logic failed in the tripped condition which did not inhibit the actuation of the manual scram. Therefore, the IRM safety function was not affected.

The RPS instrumentation for the IRM system consists of eight channels. RPS has two trip systems and each trip system has four IRM channels. The minimum number of operable channels per trip system is three IRMs; therefore, one channel can be bypassed as needed.

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NARRATIVE

RPS actuation requires one IRM in the "A" trip system and one IRM in the "B" trip system to actuate a full scram. The failure of one IRM does not result in a full actuation of the RPS logic, but a failed IRM will inhibit a reset of the affected RPS trip system.

Cause of the Event

The cause of the event was age related degradation and failure of the 2H IRM K50H relay.

Corrective Action Completed

The 2H IRM K50H relay was replaced.

Corrective Action Planned

The scram reset procedure (GP-11) will be revised to provide explicit step-by-step instructions regarding verification that all scram conditions are clear.

Previous Similar Occurrences

There was no previous valid manual actuation of the RPS system due to a failed neutron monitoring instrumentation channel in the prior five years.

Component data

System:	IG	Incore/excore Monitoring System
Component:	J1	Indicator, Power
Component number:	C51-2K601H	
Component name:	2H IRM Drawer	
Manufacturer:	G080	General Electric Company
Model number:	368X102BBG003	