

Exelon Nuclear  
Limerick Generating Station  
P.O. Box 2300  
Pottstown, PA 19464

www.exeloncorp.com

Nuclear

10 CFR50.73

May 18, 2006

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 1-06-002, SRV Position Indication on Remote Shutdown Panel

This Licensee Event Report (LER) addresses three Safety Relief Valve (SRV) position lights on the Remote Shutdown Panel which failed after a brief period of operation during a refueling surveillance test. This condition was prohibited by Technical Specifications (TS) 3.3.7.4 when at power Modes 1 and 2.

Report Number: 1-06-002  
Revision: 00  
Event Date: March 19, 2006  
Discovered Date: March 19, 2006  
Report Date: May 18, 2006

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

There are no commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

  
Ron J. DeGregorio  
Vice President - LGS  
Exelon Generation Company, LLC

Attachment LER 1-06-002

cc: S. Collins, Administrator Region I, USNRC  
S. Hansell, USNRC Senior Resident Inspector, LGS

TE22

## 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: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollect@nrc.gov](mailto:infocollect@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 05000 352	3. PAGE 1 OF 3
--	-------------------------------	-------------------

4. TITLE SRV Position Indication on the Remote Shutdown Panel Inoperable
---

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
03	19	2006	2006	- 002 -	00	05	18	2006		05000

9. OPERATING MODE 5	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
10. POWER LEVEL 0	<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)(iii)(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 checked="" 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 E. Kreider, 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	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	JL	HS	G080	Y					

14. SUPPLEMENTAL REPORT EXPECTED					15. EXPECTED SUBMISSION DATE		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)					<input checked="" type="checkbox"/> NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On March 19, 2006 in refueling outage 1R11, a surveillance test of the Safety Relief Valves (SRV) from the Remote Shutdown Panel (RSP) was being performed. The red/open bulbs failed for the three Remote Shutdown Panel Safety Relief Valves (C, A, and N) when the SRV solenoid was returned to the closed position (de-energized) following the open function (energized). On subsequent operation, the lights failed to function. The loss of indication did not affect the ability of the SRV to be operated. The cause of the event was a faulty circuit design. When the energy of the solenoid's magnetic field collapses upon de-energization, the resulting "kickback" is forced entirely into the red light bulb, which became very bright before it went out. The red bulbs were replaced and ECR 06-00138 changed the circuit design during 1R11 to incorporate a metal oxide varistor (MOV), which will absorb the transient spike that occurs when the solenoid coil is de-energized.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Limerick Generating Station, Unit 1	05000352	2006	- 002	- 00	2	O F	3

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

**Unit Conditions Prior to the Event**

Unit 1 was in Operational Condition (OPCON) 5 (Refueling Mode) in 1R11 Outage on March 19, 2006. There were no structures, systems or components out of service that contributed to this event.

**Description of the Event**

During the performance of ST-4-041-470-1, "Cyclic Test Of Main Steam Safety Relief Valve Solenoid And Air Operator Assemblies" on March 19, 2006 in outage 1R11, the red/open bulbs for the PSV-41-1F013C, PSV-41-1F013A and PSV-41-1F013N SRVs failed when the SRV solenoids were de-energized. The red/open lights come on when the handswitches for the valves are taken to OPEN. When the handswitches were taken back to CLOSE, the red bulbs became very bright for a short period of time before they went out. On subsequent operations of the handswitches/solenoids, the red indications did not function. Troubleshooting revealed that the red/open bulbs were burned out. This same condition occurred for the C, A, and N SRVs (all of the SRVs controlled at the Remote Shutdown Panel [E1IS:JL]). This is the first time that the SRV solenoids have been operated using the handswitches at the RSP for surveillance testing. The testing was enhanced resulting in a change of methodology from contact resistance to valve manipulation.

A review of C61-1050-E-010, Elementary Diagram for Remote Shutdown System, was performed. When the handswitches for the SRVs (S38, S39, and S40) are taken from OPEN to CLOSE, the red bulb remains in the circuit with the solenoid. When the energy of the solenoid's magnetic field collapses upon de-energization, the resulting "kickback" is forced entirely into the red light bulb, which becomes very bright before it burns out.

The open indication works on the first opening of the RSP SRVs. If the SRVs are closed and re-opened, there will not be any open indication until the bulbs are replaced. This condition does not occur when the SRVs are operated from the Main Control Room (MCR).

This event resulted in a review that indicated that the plant likely operated in a condition that was prohibited by Technical Specifications since initial startup. This condition was prohibited by Technical Specifications (TS) 3.3.7.4 when at power Modes 1 and 2. The valve position indication of Tech Spec Table 3.3.7.4-1 for the SRVs was inoperable. However, the operator has alternate means to determine the status of the SRVs. Therefore, this LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B).

**Analysis of the Event**

There were no actual safety consequences associated with this event. The potential safety consequences of this event were minimal since the three SRVs would have operated as required although there would not have been proper open indication.

There was no adverse impact and very low safety significance since no transient requiring the remote shutdown panel occurred during the outage. The valve open indication would have burned out if operated from the RSP.

**Cause of the Event**

The event was caused by a faulty design for the SRV control circuit at the remote shutdown panel.

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Limerick Generating Station, Unit 1	05000352	2006	- 002	- 00	3 O F 3

**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

The extent of condition is limited to Unit 1. Field Deviation Disposition Request (FDDR) HH24733 added a Metal Oxide Varister (MOV) to the Unit 2 wiring during construction.

### Corrective Action Completed

An MOV was added to the Unit 1 circuit similar to what was done for Unit 2 and the SRVs were tested satisfactorily.

### Previous Similar Occurrences

There were no previous similar occurrences where the SRV lights failed to relight following operation from the Remote Shutdown Panel.

### Component data:

Cause:	B	(Design, Manufacturing, Construction/Installation)
System:	JL	Panels System
Component:	HS	Switch Hand
Manufacturer:	G080	General Electric
Model:	N/A	
Reportable to EPIX:	Yes	