

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

www.exeloncorp.com

10CFR50.73

Dec. 1, 2000

Docket Nos. 50-353

License No. NPF-85

U.S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555

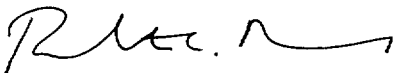
SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 2

This LER reports an unplanned actuation of the Engineered Safety Features (ESF) during operation. The actuation caused four (4) Primary Containment Isolation Valves to close resulting in the isolation of the High Pressure Coolant Injection system. The cause of the event was a failed temperature element module in the Steam Leak Detection system. The module was subsequently replaced.

Reference:	Docket No. 50-353
Report Number:	2-00-004
Revision Number:	00
Event Date:	Nov. 7, 2000
Discovery Date:	Nov. 7, 2000
Report Date:	Dec. 1, 2000
Facility:	Limerick Generating Station P.O. Box 2300, Sanatoga, PA 19464

This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv) for an unplanned ESF actuation and 10CFR50.73(a)(2)(v) for an event which alone could have prevented the fulfillment of a safety system function.

Very truly yours,



Robert C. Braun, Plant Manager LGS

cc: H. J. Miller, Administrator Region I, USNRC
A. L. Burritt, USNRC Senior Resident Inspector, LGS

IE22

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If 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.

FACILITY NAME (1)

Limerick Generating Station, Unit 2

DOCKET NUMBER (2)

05000353

PAGE (3)

1 OF 3

TITLE (4)

High Pressure Coolant Injection System Isolation Due To Failed Temperature Element Module

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	07	2000	2000	-- 004 --	00	12	01	2000	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	100	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)	X 50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)	X 50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)			

LICENSEE CONTACT FOR THIS LER (12)

NAME

K. W. Gallogly, Manager - Experience Assessment

TELEPHONE NUMBER (Include Area Code)

(610) 718-3400

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	IJ	IMOD	G080	N					

SUPPLEMENTAL REPORT EXPECTED (14)

☐ YES
(If yes, complete EXPECTED SUBMISSION DATE).

☒ NO

EXPECTED
SUBMISSION
DATE (15)

MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On Nov 7, 2000 at 02:31 hours, Unit 2, while operating at 100% power, experienced an Engineered Safety Features (ESF) actuation which isolated four primary containment isolation valves in the High Pressure Coolant Injection (HPCI) System. The isolation signal was a result of a failed temperature element module in the Steam Leak Detection system. The HPCI system was declared inoperable and a 14 day Limiting Condition of Operation (LCO) was entered in accordance with Technical Specification 3.5.1.

A four hour notification was made to the NRC at 05:30 hours on November 7, 2000 pursuant to 10CFR50.72(b)(2)(ii).

The failed module for the temperature element was replaced, and the isolation was reset on November 7, 2000 at 13:30 hours. The HPCI system was declared operable at 15:15 hours on November 7, 2000. The cause of the failure was identified as a random failure of a single isolation amplifier which resulted in signal fluctuations.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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Limerick Generating Station Unit 2	05000				2 OF
	-353	2000	004	00	3

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

BACKGROUND

At the time of the event Unit 2 was in Operational Condition (OPCON) 1 (power operation) at a nominal 100% power. There were no structures, systems or components out of service which contributed to the event.

EVENT DESCRIPTION

On Nov 7, 2000 at 02:31 hours, Unit 2 experienced an unplanned Engineered Safety Feature (ESF)[EIS:JM] actuation which isolated four primary containment isolation valves [EIS:JM]. These four valves in the High Pressure Coolant Injection System[EIS:BJ] which receive an isolation signal were HV-055-2F003, HV-055-2F100, HV-055-2F041 and HV-055-2F042. Only HV-055-2F003 (HPCI outboard valve) is normally open and, therefore, changed position as a result of the isolation signal.

A evaluation was conducted of the temperature element (TE-55-2N025B) in the Steam Leak Detection System [EIS: IJ] which revealed temperature fluctuations between 120 and 300 degrees F. There were no steam leaks in the HPCI room based on piping walkdowns and a review of room temperatures.

The failed module for the temperature element was replaced, the isolation was reset on November 7, 2000 at 13:30 hours, and the HPCI system was declared operable at 15:15 hours on November 7, 2000. The temperature element module was sent to General Electric for failure analysis.

A 4 hour notification was made to the NRC for ESF actuation per 10CFR50.72(b)(2)(ii) on November 7, 2000 at 05:30 hours.

This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv) for an unplanned ESF actuation and 10CFR50.73(a)(2)(v) for an event which prevented the fulfillment of a safety system function.

CAUSE OF THE EVENT

A failure analysis was performed on the temperature element module. The analysis showed that the signal fluctuations were caused by a random failure of a single isolation amplifier on the module. This type of temperature element module failure has not been seen at Limerick station nor has it been identified in other operating experience reviews. In 1985 (LER 85-009-00) a Unit 1 event occurred that isolated the HPCI system due to a resistor failure on a similar module.

CONSEQUENCES OF THE EVENT

There were no actual safety consequences of the event. The unit entered a 14 day LCO for the HPCI system. The potential safety consequences of the event were minimal. The HPCI system was returned to service within 12 hours, and other means of high pressure injection and depressurization were available for design basis events. A redundant temperature element was available to complete the isolation.

CORRECTIVE ACTION COMPLETED

The failed temperature element module was replaced, and the logic was reset. The affected PCIV's were returned to service, and the unit exited the HPCI LCO.

CORRECTIVE ACTION PLANNED

The final report of the failure analysis will be reviewed by December 31, 2000.

PREVIOUS SIMILAR EVENTS

Unit 1 LER 85-009-00 dated 2/11/85

LICENSEE EVENT REPORT (LER)
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FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

FAILURE DATA

Thermocouple input module

Manufacturer-General Electric

Model-NUMAC P/N 239B7176G001 Board

Analog Devices 1B51AN Isolation Amplifier (GE P/N 188C7818P001)