

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

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J. DOERING, JR.
PLANT MANAGER
LIMERICK GENERATING STATION

January 23, 1991
Docket No. 50-352
License No. NPF-39

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

SUBJECT: Special Report
Limerick Generating Station - Unit 1

This Special Report reports the inoperability of the Unit 1 Loose-Part Monitoring System for more than 30 days due to the failure of one of the Printed Circuit Boards.

Reference:	Docket No. 50-352
Report Number:	1-91-003
Revision Number:	00
Event Date:	January 13, 1991
Report Date:	January 23, 1991
Facility:	Limerick Generating Station P.O. Box A, Sanatoga, PA 19464

This Special Report is being submitted pursuant to the requirements of Technical Specifications Section 6.9.2 as required by Technical Specifications Section 3.3.7.10, "Loose-Part Detection System."

Very truly yours,

JKP:rgs

cc: T. T. Martin, Administrator, Region I, USNRC
T. J. Kenny, USNRC Senior Resident Inspector, LGS

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Limerick Generating Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 5 2	PAGE (3) 1 OF 0 3
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TITLE (4) Inoperability of the Loose-Part Monitoring System for more than 30 days due to a faulty electrical component in one system.

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 NAMES								
0	1	13	9	1	9	1	0	0	0	3	0						
0	1	13	9	1	9	1	0	0	0	1	2	3	9	1			

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check one or more of the following) (11)									
POWER LEVEL (10)	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(a)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.36(a)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 386A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	Special Report						
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME G. J. Madsen, Regulatory Engineer, Limerick Generating Station		AREA CODE 2 1 5
		3 2 7 - 1 2 0 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

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

ABSTRACT (Limit to 1400 words, i.e., approximately fifteen single-space typewritten lines) (16)

On January 13, 1991, the Limerick Generating Station (LGS) Unit 1 Loose-Part Monitoring System (LPMS) was inoperable for more than 30 days requiring submittal of a Special Report in accordance with the requirements of Technical Specifications (TS) Section 6.9.2. On December 5, 1990, during an independent verification of a Surveillance Test (ST) procedure, ST-2-036-640-1, "Loose Part Monitoring System Channel Functional Test," the system engineer identified that the Digital Loose Part Locator (DLPL) circuit of the LPMS was in a "lockup" condition and could not be reset. It was then concluded that the LPMS was incapable of responding to a potential loose part event. The LPMS had entered a 30 day action requirement as required by TS Section 3.3.7.10 on December 14, 1990, when the Unit 1 Operational Condition (OPCON) was changed from OPCON 4 (Cold Shutdown) to OPCON 2 (Startup). As a result, on January 13, 1991, the 30 day time limit for returning the LPMS to operable status expired requiring the submittal of a Special Report in accordance with TS Sections 3.3.7.10 and 6.9.2. The cause of the malfunction has not yet been determined with certainty beyond recognizing that a faulty component in one of the DLPL printed circuit boards is the probable cause. A purchase requisition has been initiated to replace all the boards in the DLPL circuit. The new DLPL circuit boards are expected to be replaced by March 1, 1991, which will enable the LPMS to be returned to an operable condition.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Limerick Generating Station, Unit 1	DOCKET NUMBER (2) 0 6 1 0 0 0 3 5 2	LER NUMBER (3)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 1	0 0 3	0 0	0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Reporting Requirements:

Technical Specifications (TS) Section 3/4.3.7.10, Loose-Part Detection System

TS Section 3.3.7.10 requires that, with one or more Loose-Part Detection System channels inoperable for more than 30 days, a Special Report must be prepared and submitted to the NRC in accordance with TS Section 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to operable status.

TS Section 6.9.2, - Special Reports

TS Section 6.9.2 - Special reports shall be submitted to the Regional Administrator of the Regional Office of the NRC within the time period specified for each report.

Description of the Event:

On January 13, 1991, it was determined that the Limerick Generating Station (LGS) Unit 1 Loose-Part Monitoring System (LPMS) had been inoperable for more than 30 days requiring submittal of a Special Report in accordance with the requirements of TS Section 6.9.2. The LPMS is designed to detect and help locate the presence of loose or broken components within the Reactor Coolant System.

On December 5, 1990, during an independent verification of Surveillance Test (ST) procedure ST-2-036-640-1, "Loose Part Monitoring System Channel Functional Test," the system engineer identified that the Digital Loose Part Locator (DLPL) circuit of the LPMS had been in a "lockup" condition. The system engineer could not reset the DLPL either automatically or manually, and therefore it was concluded that the system was incapable of responding to a potential loose part event. The LPMS system was not declared inoperable at this time since the plant was in a shutdown mode of operation and this system is not required to be operable during shutdown conditions. The DLPL circuit is a digital logic driven subsystem of the LPMS which provides the notification of a potential loose part event by discriminating against spurious electrical signals and background noise.

Subsequent troubleshooting was performed by the Instrumentation & Controls (I&C) personnel to isolate the cause of the lockup in the DLPL circuit. The troubleshooting was unsuccessful and a decision was made to order all new printed circuit boards for the DLPL circuit. The vendor (Babcock & Wilcox) was contacted on December 17, 1990 to initiate purchase of the circuit boards. Subsequently, on January 3, 1991, I&C personnel were informed by the vendor that the required components were not a stock item and would require up to 8 weeks to fabricate and deliver the components.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Limerick Generating Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 5 2	LER NUMBER (6)			PAGE (3)		
		YEAR 9 1	SEQUENTIAL NUMBER 0 0 3	REVISION NUMBER 0 0 0			
						3 OF 3	

TEXT (If more space is required, use additional NRC Form 266A's) (17)

The LPMS is required to be operable in Operational Condition (OPCON) 1 (Power Operation) and 2 (Startup). The LPMS entered a 30 day TS Action statement as required by TS Section 3.3.7.10 on December 14, 1990, when the Unit 1 OPCON was changed from OPCON 4 (Cold Shutdown) to OPCON 2 (Startup). As a result, on January 13, 1991, the 30 day time limit for returning the LPMS to operable status had expired requiring the submittal of a Special Report in accordance with the requirements of TS Sections 3.3.7.10 and 6.9.2.

Analysis of the Event:

There are no adverse consequences as a result of this event. There have been no indications of a loose part event during the time period that the LPMS has been inoperable. Had the Main Control Room operators suspected a loose part event during this time period or identified any system abnormalities during performance of the daily LPMS channel check, the capability to verify the presence of a loose part through the performance of an audio check of each channel of the LPMS was available to confirm any suspicions. Also, the ability to manually initiate recording of any four channels of the LPMS is still available.

Cause of the Malfunction:

The cause of the malfunction has not yet been determined with certainty beyond recognizing that a faulty component in one of three Printed Circuit Boards is the probable cause. There have been no other previous similar events experienced on this type of equipment at LGS and therefore, we have concluded that this malfunction is the result of a random equipment failure.

Corrective Actions:

The purchase requisition for the replacement printed circuit boards was initiated on January 3, 1991 by the system engineer. The new DLPL circuit boards are expected to be replaced by March 1, 1991, which will enable the LPMS to be returned to an operable condition.

Information will be provided to the operations personnel providing instructions for monitoring for loose parts until the LPMS is returned to an operable status.

To prevent recurrence of the delay in restoring the LPMS to operability, a plant stock level for every component that is not easily obtainable is expected to be established by February 15, 1991.