

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

P. O. BOX A

SANATOGA, PENNSYLVANIA 19464

(215) 827-1200 EXT. 2000

July 10, 1992

J. DOERING, JR.
PLANT MANAGER
LIMERICK GENERATING STATION

Docket Nos. 50-352
50-353
License Nos. NPF-39
NPF-85

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

SUBJECT: Licensee Event Report
Limerick Generating Station - Units 1 and 2

This LER reports a condition outside the design basis of the plant and a condition prohibited by Technical Specifications (TS), in that Fire Rated Barriers were discovered degraded due to design and installation deficiencies and the associated TS ACTION had not been taken within the required time.

Reference:	Docket Nos. 50-352 50-353
Report Number:	1-92-012
Revision Number:	00
Event Date:	October 26, 1984
Discovery Date:	June 11, 1992
Reportability Date:	June 16, 1992
Report Date:	July 10, 1992
Facility:	Limerick Generating Station P.O. Box 2300, Sanatoga, PA 19464-2300

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B), and 10CFR50.73(a)(2)(ii)(B), and License Conditions 2.E for Unit 1 and 2.F for Unit 2.

Very truly yours,

DCS:cah

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 | 4**

TITLE (4) **Thermo-Lag Fire-rated Barriers Found Inoperable Resulting in a Tech Spec Violation and a Condition Outside the Plant Design Basis due to Installation and Design Deficiencies**

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		DOCKET NUMBER(S)
06	16	92	92	012	00	07	10	92	Limerick, Unit 2		0 5 0 0 0 3 5 3
											0 5 0 0 0 1 1

OPERATING MODE (8) **4** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § 1.71 (Check one or more of the following) (11)

20.402(b)	<input type="checkbox"/>	20.405(c)	<input type="checkbox"/>	60.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)	<input type="checkbox"/>
20.405(a)(1)(ii)	<input type="checkbox"/>	60.38(a)(1)	<input type="checkbox"/>	60.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)	<input type="checkbox"/>
20.405(a)(1)(iii)	<input type="checkbox"/>	60.38(a)(2)	<input type="checkbox"/>	60.73(a)(2)(vi)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	OTHER (Specify in Abstract below and in Text, NRC Form 208A)
20.405(a)(1)(iv)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	60.73(a)(2)(vii)	60.73(a)(2)(viii)(A)	<input type="checkbox"/>	License Condition 2.C.3	
20.405(a)(1)(v)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	60.73(a)(2)(viii)	60.73(a)(2)(viii)(B)	<input type="checkbox"/>		
20.405(a)(1)(vi)	<input type="checkbox"/>		60.73(a)(2)(ix)	60.73(a)(2)(ix)	<input type="checkbox"/>		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
G. J. Madsen, Regulatory Engineer, Limerick Generating Station	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)

<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
			10	30	92

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

Abstract:

On June 11, 1992, corporate and station fire protection personnel determined that various deficiencies in "Thermo-Lag" assemblies (which serves as a fire-rated barrier) existed. On June 16, 1992, station fire protection and regulatory personnel determined that this condition resulted in the inoperability of the associated fire rated barriers and had existed since initial installation of the assemblies. The Limerick Generating Station (LGS) Technical Specification (TS) Section 3.7.7, "Fire Rated Assemblies," ACTION was not satisfied for the inoperable assemblies. Therefore the deficient assemblies resulted in a condition prohibited by TS. Upon investigation into the cause and extent of this condition, plant staff determined on June 30, 1992 that the deficient Thermo-Lag fire barriers constituted a condition outside the design basis of the plant. No fire occurred in any of the affected areas which would have challenged the degraded fire-rated barriers. The causes of this condition were design deficiencies and installation deficiencies which have existed since initial installation. Upon discovery of each degraded barrier, the appropriate TS ACTION was satisfied through posted firewatches. As further information regarding corrective actions becomes available throughout the industry, further measures will be planned and implemented. Future corrective actions will be included in the supplement to this report expected to be submitted by October 30, 1992.

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		YEAR 9 2	SEQUENTIAL NUMBER — 0 1 2	REVISED NUMBER — 0 0 0	2 OF 0 4	

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

Unit Conditions Prior to the Event:

Unit 1 was in Operational Condition (OPCON) 4 (Cold Shutdown) at the time of the discovery of this condition.

Unit 2 was in OPCON 1 (Power Operation) at 100% power at the time of the discovery of this condition.

There were no other systems or structures out of service which contributed to this event.

Background:

As a result of the draft NRC Generic Letter No. 92-XX, "Thermo-Lag Fire Barriers," dated February 11, 1992, corporate and station fire protection personnel began a review of installed "Thermo-Lag" material for adequacy. Thermo-Lag material is used at Limerick to provide a fire rated barrier in a combustible free zone and to protect vital cables for equipment necessary to ensure safe shutdown of the plant.

Description of the Event:

On June 11, 1992, corporate and station fire protection personnel identified various deficiencies in Thermo-Lag assemblies. On June 16, 1992, station regulatory and fire protection personnel determined that the deficiencies resulted in the fire rated barriers being inoperable and that the condition had existed since initial installation of the Thermo-Lag, which occurred prior to October 26, 1984, the date of issuance of the Unit 1 Low Power Operating License. The Limerick Generating Station (LGS) Technical Specifications (TS) Section 3.7.7, "Fire Rated Assemblies," ACTION had not been satisfied for the inoperable assemblies. Therefore, the deficient Thermo-Lag fire barriers resulted in a condition prohibited by TS. As each deficient fire rated barrier was identified to be inoperable, the appropriate fire watches were posted.

Upon investigation into the cause and extent of this condition, the corporate and station fire protection personnel concluded, on June 29, 1992, that many of the plant's original Thermo-Lag installations were inoperable. The plant staff determined on June 30, 1992 that the deficient Thermo-Lag assemblies constituted a condition outside the design basis of the plant and that the provisions of the Fire Protection Program described in the Updated Final Safety Analysis Report were not maintained. This determination was made in conjunction with information provided in NRC Bulletin 92-01, "Failure of Thermo-Lag 330 Fire Barrier System to Maintain Cabling in Wide Cable Trays and Small Conduits Free from Fire Damage," and Information Notice 92-46, "Thermo-Lag Fire Barrier Material Special Review Team Final Report Findings, Current Fire Endurance Tests, and Ampacity Calculation Errors." The appropriate immediate TS compensatory actions of posting firewatches were completed. Further details of

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TEXT (If more space is required, use additional NRC Form 306A's) (17)

the condition analysis, cause, and corrective actions will be included in a supplement to this report expected to be submitted by October 30, 1992.

A one-hour non-emergency notification was completed on June 30, 1992, to report a condition outside the design basis of the plant, in accordance with 10CFR50.72(b)(1)(ii)(B). Additionally, the notification satisfied the twenty-four-hour reporting requirement of License Conditions 2.F and 2.E for Units 1 and 2 respectively to report failure to maintain the provisions of the approved Fire Protection Program as defined by License Condition 2.C.3. Accordingly, this report is being submitted in accordance with 10CFR50.73(a)(2)(i)(B) to report a condition prohibited by TS, 10CFR50.73(a)(2)(ii)(B) to report a condition outside the design basis of the plant, and License Conditions 2.E and 2.F to report a failure to maintain the provisions of the approved Fire Protection Program.

Analysis of the Event:

No fire occurred in any of the affected areas which would have challenged the degraded Thermo-Lag fire-rated barriers. The design of the fire protection program relies on a "defense-in-depth" approach which serves to prevent a fire from starting, quickly detect and suppress fires which do start, and protect safety related equipment so that a fire will not prevent safe shutdown of the plant. Automatic detection and suppression capabilities exist in many of the affected areas of the plant. Further analysis of this condition will be included in the supplement to this report.

Cause of the Event:

The causes of this condition were design deficiencies and installation deficiencies which have existed since initial installation. Upon further investigation, station personnel determined that the design deficiencies were such that the fire rated barriers were not capable of performing their designed function in a combustible free zone and not capable of protecting vital cables for equipment necessary to ensure safe shutdown of the plant in the event of a fire. An investigation into the cause for this condition is continuing, and any additional information obtained will be included in the supplement to this report.

Corrective Actions:

Upon discovery of each fire degraded barrier, the appropriate TS ACTION was satisfied through posted firewatches. Following the conclusion that many of the plant's original Thermo-Lag installations were inoperable, all areas which relied on Thermo-Lag fire barriers had appropriate firewatches posted. Appropriate corrective actions to restore fire barrier operability are being developed through an industry program being coordinated by the Nuclear Management and Resources Council (NUMARC). As further information regarding corrective actions becomes available throughout the industry, further measures

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TEXT IF more space is required, use additional NRC Form 366A (1-17)

will be planned and implemented. Future corrective actions will be included in the supplement to this report.

Previous Similar Occurrences:

There have been no previous similar occurrences of this type of condition at either unit at LGS.

Tracking Codes: B5 - Application of design principles inadequate