

## PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

P. O. BOX A

SANATOGA, PENNSYLVANIA 19464

[215] 327-1200 EXT. 2000

J. DOERING, JR.  
PLANT MANAGER  
LIMERICK GENERATING STATION

July 29, 1991  
Docket No. 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 operation in a condition prohibited by Technical Specifications (TS) in that two floor drains plugs that were normally locked in place associated with Reactor Enclosure (RE) Secondary Containment (SC) boundary were removed, rendering RE SC integrity inoperable, and TS Section 3.6.5.1.1. ACTIONS were not taken within the required time. The cause of this event is personnel error as a result of less than adequate job planning due to inadequate floor drain system design drawings.

Reference:	Docket No. 50-353
Report Number:	2-91-012
Revision Number:	00
Event Date:	June 24, 1991
Discovery Date:	June 27, 1991
Report Date:	July 29, 1991
Facility:	Limerick Generating Station P.O. Box A, Sanatoga, PA 19464

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B).

Very truly yours,

*LA Hopkin for*  
*J Doering*

WGS: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)

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Limerick Generating Station, Unit 2										0 5 0 0 0 3 5 3 1										OF 0 5																																							
TITLE (4) This LER reports the removal of two floor drain plugs associated with Reactor Enclosure (RE) Secondary Containment (SC), rendering RE SC inoperable due to personnel error.																																																											
EVENT DATE (5)										LER NUMBER (6)										REPORT DATE (7)										OTHER FACILITIES INVOLVED (8)																													
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OPERATING MODE (9)										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)																																																	
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POWER LEVEL (10)										20.405(a)(1)(i)										50.38(a)(1)										50.73(a)(2)(v)										73.73(c)																			
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G. J. Madsen, Regulatory Engineer, Limerick Generating Station																				AREA CODE																																							
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On June 27, 1991, the Radwaste System Engineer (SE) recognized that two normally locked in place floor drain plugs associated with maintaining Unit 2 Reactor Enclosure (RE) Secondary Containment (SC) integrity had been removed by maintenance personnel on June 24, 1991, at approximately 1300 hours. The SE immediately instructed maintenance personnel to re-install and lock in place the two Unit 2 floor drain plugs. The two Unit 2 floor drain plugs were re-installed and locked in place at 1000 hours, on June 27, 1991, thereby restoring Unit 2 RE SC integrity. This event resulted in a condition prohibited by Technical Specifications. The actual consequences of the event were minimal in that no radioactive release occurred due to the Unit 2 RE being maintained at the required negative differential pressure for the duration of this event. The cause of this event is personnel error involving the following causal factors: less than adequate job planning as a result of inadequate floor drain system design drawings, inadequate communication, sense of job urgency for job completion, failure to comply with Administration procedure A-8, "Procedure for control of Locked Valves and Devices," due to lack of training, less than adequate attention to detail, and a lack of a questioning attitude by maintenance personnel. Corrective actions include a study on floor drain system drawings, counseling, and training of maintenance personnel on Administrative procedure A-8.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/95

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

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

Background:

In March, 1991, Radwaste personnel became aware of a recently completed High Energy Line Break (HELB)/Medium Energy Line Break (MELB) study that took into consideration floor drain opening sizes to account for room drainage. Radwaste personnel reviewed the HELB/MELB study and discovered that the analysis assumed that certain rooms required floor drains to have 4 inch openings. This HELB/MELB study was then identified to be in conflict with a floor drain design drawing. Further engineering evaluation was conducted and subsequently completed on June 12, 1991, and concluded that selective floor drain flow reducing plugs were required to be removed to maintain the conclusions of the HELB/MELB study. Radwaste personnel then initiated a Maintenance Request Form (MRF) for the removal of the floor drain flow reducing plugs. In addition, an evaluation of potential flood levels in applicable plant areas with the floor drain flow reducing plugs installed was performed to determine the impact on plant equipment and safe shutdown equipment. This evaluation concluded that in the event of a HELB/MELB accident, adequate safe shutdown methods would have been available to safely bring the plant to a cold shutdown condition with the floor drain flow reducing plugs installed. This condition was evaluated and determined to be not reportable.

Unit Conditions Prior to the Event:

Unit 2 Operational Condition was 1 (Power Operation) at 100% power level.

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

Description of the Event:

On June 24, 1991, at approximately 1300 hours, maintenance personnel removed two normally locked in place floor drain (EHS:DRN) plugs in accordance with a MRF. These plugs are required to be installed to maintain Unit 2 Reactor Enclosure (RE) Secondary Containment (SC) integrity. Removal of these plugs resulted in the inoperability of RE SC integrity in that the Limiting Condition for Operation (LCO) for Technical Specification (TS) Section 3.6.5.1.1, "Reactor Enclosure Secondary Containment Integrity" was not met. The associated TS ACTION statement requires RE SC integrity to be restored within 4 hours or be in at least Hot Shutdown within the next 12 hours and in Cold Shutdown within the following 24 hours.

On June 27, 1991, the Radwaste System Engineer (SE) recognized that two normally locked in place floor drain plugs in the Unit 2 RE fan room, which is located outside SC, were removed. The SE immediately instructed maintenance personnel to re-install the two Unit 2 floor drain plugs. Main Control Room (MCR) operations personnel were then notified of the condition of the floor plugs. After further investigation by the Radwaste SE, it was identified that the two Unit 2 RE fan room floor drain plugs had been removed by maintenance personnel

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/95

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Limerick Generating Station, Unit 2	0 5 1 0 0 0 3 5 2 9 1	—	0 1 2	—	0 0	0 3	OF 0 5

TEXT (If more space is required, use additional NRC Form 3654 (1/117))

on June 24, 1991, at approximately 1300 hours. Unit 2 RE SC integrity was restored on June 27, 1991 at 1000 hours when the two Unit 2 floor drain plugs were re-installed and locked in place by maintenance personnel.

Since RE SC integrity was inoperable and the ACTIONS associated with TS Section 3.6.5.1.1 were not satisfied within the specified time period, this event resulted in a condition prohibited by TS. Therefore, this report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(i)(B).

Analysis of the Event:

The actual consequences of this event were minimal in that no release of radioactive material to the environment occurred due to the Unit 2 RE SC being maintained at the TS required negative differential pressure for the duration of this event.

In the event an accident condition had occurred with the potential for a release of radioactive material from the RE SC, a 4 inch diameter leakage pathway into the Unit 2 RE SC would have existed (i.e., the two 4 inch diameter drains with a common 4 inch drain line). This small leakage pathway is not expected to significantly affect the ability of the Standby Gas Treatment System (SGTS) to draw down and maintain RE SC negative differential pressure. Therefore, this breach of SC would have a minimal affect on the potential release of radioactive material to the outside environment.

If an accident had occurred with the potential for a release of radioactive material from the RE SC and the RE negative differential pressure was not maintained by the SGTS, an unmonitored release of radioactive material to the environment could have occurred. In response to this type of accident, the operators would have initiated Transient Response Implementation Plan (TRIP) procedure T-103, "Secondary Containment Control," and T-104, "Radioactivity Release Control," for directions to mitigate a radioactive material release. Licensed operators receive requalification training to review and practice responses to simulated plant transients of this type. The procedures, training, and operator actions would have mitigated the consequences of this type of accident.

Cause of the Event:

The cause of this event is personnel error involving the following casual factors:

- o Less than adequate job planning due to inadequate floor drain system design drawings.
- o Inadequate communication between the maintenance work group and maintenance foreman on new developments affecting the originally planned job.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMR NO. 3150-0104

EXPIRES 6/30/95

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)
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TEXT (If more space is required, use additional NRC Form 306A's) (17)

- o Sense of urgency for job completion which resulted in a lack of maintenance personnels' attention to detail and questioning attitude.
- o Maintenance worker failed to comply with the controls established in Administrative (A) procedure A-8, "Procedure for Control of Locked Valves and Devices," due to a lack of training on this procedure.

On June 18, 1991, maintenance personnel began removing Unit 1 floor drain flow reducing plugs as directed by a MRF. This MRF had been generated by the SE who provided the affected drain information as identified from design drawings. However, these design drawings did not indicate actual plant configuration of floor drain plugs (i.e., open, closed, or locked in place). On June 19, 1991, due to concerns with respect to the plant HELB/MELB analysis, the SE requested that this task be given a higher priority. As a result of the SE request, the maintenance foreman organized a second work group to begin removing the Unit 2 floor drain flow reducing plugs.

On June 21, 1991, the work group in Unit 1 contacted the SE and questioned the removal of two locked closed floor drain plugs in the RE fan room indicated on the MRF. The SE instructed the work group to leave the floor drain plugs in place. The Unit 1 work group did not inform the maintenance foreman of this finding. Therefore, communication between the Unit 1 work group and the Unit 2 work group did not occur.

On June 24, 1991, at approximately 1300 hours, maintenance personnel associated with the work group in Unit 2 identified two locked in place floor drain plugs, similar to those identified in Unit 1. The maintenance worker noted the device lock type and proceeded to the MCR to obtain the key from shift supervision.

Additionally, the maintenance worker was unaware of the administrative requirement to obtain the MCR Shift Supervisor's approval to manipulate locked devices and make a locked valve/device log entry in accordance with procedure A-8. As a result, the maintenance worker unlocked and removed the Unit 2 floor drain plugs without properly notifying MCR operations personnel.

Corrective Actions:

- o Maintenance craft personnel will receive training on procedure A-8 in the continuing training program by December 31, 1991. In the interim, All Hands Meetings will be held with appropriate maintenance personnel by August 15, 1991, to heighten the awareness of the requirements associated with procedure A-8.
- o An engineering study will be initiated to review the floor drain design drawings and determine the appropriate corrective action(s) which will effectively solve the identified drawing inadequacies. This study is expected to be completed during the first quarter of 1992.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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

- o The need to maintain adequate communication of significant developments or changes from originally planned work will be discussed with the appropriate maintenance personnel.
- o Maintenance personnel associated with the work group in Unit 2 will be counseled on the importance of maintaining adequate attention for detail and a questioning attitude during performance of work.
- o MCR operations personnel will be informed of this event and will be directed to reinforce the requirements of the locked valve/device program on key issuance.

Previous Similar Occurrences:

LERs 1-91-001 and 1-91-012 reported events that affected RE SC integrity. These two events involved the actuation of a blowout panel due to RE Heating Ventilation, and Air Conditioning fan problems which affected the ability to maintain RE SC at a negative differential pressure. However, this event involved unauthorized removal of RE floor drains such that RE SC negative differential pressure was not affected. Therefore, due to dissimilar circumstances surrounding this event, the corrective actions associated with these previous LERs would not have prevented the occurrence of this event.

Tracking Codes: A1 - Failure to Follow Administrative Procedures  
A7 - Failure to Properly Communicate  
A99 - Other Personnel Errors