

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

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J. DOERING, JR.
PLANT MANAGER
LIMERICK GENERATING STATION

March 03, 1993
Docket No. 50-352
License No. NPF-39

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

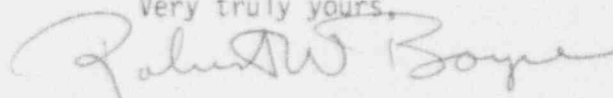
SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 1

This LER reports the closure of a primary containment isolation valve, an Engineered Safety Feature actuation, caused by a faulty microswitch internal to a pressure differential switch.

Reference:	Docket No. 50-352
Report Number:	1-93-002
Revision Number:	00
Event Date:	February 6, 1993
Report Date:	March 03, 1993
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)(iv).

Very truly yours,



FOR J. DOERING

DMS: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 1										PAGE (3) OF 0 5																													
TITLE (4) Closure of a Primary Containment Isolation Valve in the Instrument Gas System due to a faulty Microswitch within a Pressure Differential Switch.																																																	
EVENT DATE (5) MONTH DAY YEAR 0 2 0 6 9 3 9 3									LER NUMBER (6) YEAR SEQUENTIAL NUMBER REVISION NUMBER 0 0 2 0 0									REPORT DATE (7) MONTH DAY YEAR 0 3 0 3 9 3									OTHER FACILITIES INVOLVED (8) FACILITY NAMES DOCKET NUMBER(S) 0 5 0 0 0 0 0 0																						
OPERATING MODE (9) 1										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)																																							
POWER LEVEL (10) 1 0 0										20.402(b)										20.405(c)										X 50.73(a)(2)(iv)										72.71(b)									
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										20.405(a)(1)(ii)										50.36(c)(2)										50.73(a)(2)(vii)										OTHER (Specify in Abstract below and in Text, NRC Form 360A)									
										20.405(a)(1)(iii)										50.73(a)(2)(iii)										50.73(a)(2)(viii)(A)																			
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LICENSEE CONTACT FOR THIS LER (12) NAME Gil J. Madsen, Regulatory Engineer, Limerick Generating Station																														TELEPHONE NUMBER AREA CODE 2 1 1 5 3 1 2 7 1 - 1 1 2 1 0 1 0																			
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																	
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																																																	

On February 6, 1993, during the Main Control Room shift turnover, a Reactor Operator identified that the normally open Unit 1 long term gas supply to the Automatic Depressurization System (ADS) Primary Containment Isolation Valve (PCIV) was in the closed position. Operations personnel declared the PCIV inoperable, and troubleshooting of the PCIV was initiated. An evaluation concluded that the PCIV closed sometime between 2300 hours on February 5, 1993, and 0710 hours on February 6, 1993. This event is a recurrence of an identical event which occurred on December 9, 1992, and was reported in LER 1-92-018. The cause of the PCIV closure was identified to be the result of a faulty microswitch internal to a pressure differential switch (PDS). The microswitch and the PCIV handswitch were replaced. The PDS and PCIV were then successfully tested in accordance with a Surveillance Test (ST) procedure. Based upon the acceptable ST results, the PCIV was declared operable. The consequences of this event were minimal. A review of the test records for identical operating PDSs in the plant and a review of the Nuclear Plant Reliability Data System were performed. No similar problems were identified, and therefore, we conclude that the faulty microswitch internal to the PDS is an isolated occurrence. Since the PDS and the handswitch are the only instruments that can directly cause closure of the PCIV, the refurbishment of the PDS should prevent the recurrence of a similar event.

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 366A's) (17)

Unit Conditions Prior to the Event:

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

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

Description of the Event:

On February 6, 1993, at 0710 hours, during a Unit 1 Main Control Room (MCR) shift turnover, a licensed Reactor Operator identified that the normally open Unit 1 Primary Containment Isolation Valve (PCIV, E11S:JM) HV-059-151A was indicating closed on the MCR panel 10C626. At 0710 hours, Operations personnel declared the PCIV inoperable, and the four hour ACTION associated with the Technical Specifications (TS) section 3.6.3, "Primary Containment Isolation Valves," was entered. Instrumentation and Controls (I&C) technicians were notified and troubleshooting was initiated utilizing a Troubleshooting Control Form to determine the cause for the valve closure. The PCIV is designed to close when the Primary Containment Instrument Gas (PCIG, E11S:LE) system supply pressure decreases to approximately 2 psig above primary containment pressure. The PCIV is associated with the Primary Containment and Reactor Vessel Isolation Control System (PCRIVICS, E11S:BD), an Engineered Safety Feature (ESF). Closure of this valve constitutes an ESF actuation. The exact time of the PCIV closure could not be determined since there is no alarm associated with the closure of the PCIV. However, since a status review of the plant PCIVs is performed during each shift by MCR Operations personnel, we can conclude that the PCIV HV-59-151A closed sometime between 2300 hours on February 5, 1993, and 0710 hours on February 6, 1993. This event is a recurrence of an identical event which occurred on December 9, 1992, and was reported in LER 1-92-018.

The investigation by the I&C technicians determined that no recorded actual differential pressure conditions existed for the PCIV to receive a close signal. The PDS was last successfully tested on January 27, 1993. The PDS and the PCIV handswitch are the only instruments that can directly cause closure of the PCIV. The I&C technicians postulated that the handswitch for the PCIV was possibly faulty, resulting in the PCIV closure. At 1000 hours, on February 6, 1993, Operations personnel de-energized the closed PCIV to comply with the four hour ACTION associated with TS section 3.6.3, and to allow troubleshooting activities to continue.

A four hour notification was made to the NRC at 1105 hours, on February 6, 1993, in accordance with the requirements of 10CFR50.72(b)(2)(ii), since this event resulted in automatic actuation of an ESF.

At 1400 hours, on February 6, 1993, a work request was issued to Maintenance personnel to replace the suspect handswitch. The suspect handswitch was replaced with a new handswitch on February 11, 1993. Further analysis of the

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suspect handswitch in the Maintenance testing shop, revealed that the handswitch operated properly and was not the cause of the PCIV closure.

The I&C technicians were notified by Maintenance personnel of their investigation findings. The I&C technicians then returned to the PCIV to continue troubleshooting, and later identified that a microswitch internal to the pressure differential switch (PDS, E11S:PDS) PDS-059-106A was operating erratically. On February 16, 1993, the faulty microswitch was replaced with a new microswitch. The PDS and the PCIV were then functionally tested in accordance with the Surveillance Test (ST) procedure ST-2-059-602-1, "Channel A Calibration/Functional Test of the Primary Containment Instrument Gas Isolation on Low Differential Pressure (PDS-59-106A, HV-59-151A)." At 1415 hours, on February 16, 1993, the PCIV was declared operable based on the satisfactory results of the functional ST procedure. The replacement of the handswitch and the microswitch were scheduled to minimize the disruption of other ongoing priority work, and to minimize the Unit 2 refueling outage support activities. This report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(iv).

Analysis of the Event:

The actual consequences of this event were minimal. There was no release of radioactive material to the environment as a result of this event. No actual loss of pressure differential condition existed prior to or during this event. The PCIV responded as directed by the PDS. The closure of HV-059-151A isolated the 'A' Loop Backup and Long Term Instrument Gas Supply to three of the five ADS valves. The 'B' loop normal gas supply and the individual PCIG system accumulators to each of the three ADS valves were unaffected by the closure. The other two ADS valves, supplied by the 'A' loop of the PCIG system, and the 'B' loop backup, were unaffected by the PCIV closure (see Figure 1). Therefore, the ADS valves remained operable throughout the event. In the event of an accident requiring the operation of the solenoid valves to open the ADS valves, the normal PCIG supply and the PCIG accumulators were available.

Cause of the Event:

An investigation by the I&C technicians identified that a faulty microswitch internal to the PDS (PDS-059-106A) resulted in the closure of the PCIV. A functional check of the PDS was last successfully completed on January 27, 1993, by the performance of procedure ST-2-059-602-1. Test data indicated that the PDS was left within acceptable limits, and the PCIV was left open following completion of the ST procedure. Since a status review of plant PCIVs is performed each shift by MCR Operations personnel, we can conclude that the PCIV HV-59-151A closed sometime between 2300 hours on February 5, 1993, and 0710 hours on February 6, 1993, when the condition was discovered.

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

Corrective Actions:

The subject PDS was refurbished with a new microswitch on February 16, 1993. Since the PDS and the handswitch are the only instruments that can directly cause closure of the PCIV, the refurbishment of the PDS should prevent the recurrence of a similar event. A review of the test records for identical PDSs installed on other plant equipment was performed. Additionally, a review of the Nuclear Plant Reliability Data System (NPRDS) was performed. Both reviews were completed on February 24, 1993. Plant personnel were unable to identify any similar problems from these reviews. Therefore, we have concluded that this faulty microswitch internal to the PDS is an isolated occurrence, and no further corrective actions will be planned.

Previous Similar Occurrences:

On January 8, 1993, LER 1-92-018 reported an identical event in which PCIV HV-59-151A was found closed due to a stuck microswitch internal to the PDS-059-106A. The microswitch was cleaned and exercised and the problem could not be duplicated. The PDS was then calibration checked and found to be operating with acceptable limits. Since the PDS and the PCIV were operating satisfactorily, the need to perform additional work on the PDS was concluded to be unnecessary. Reviews of the test records for identical PDSs installed on other plant equipment, and of the NPRDS were performed. Plant personnel were unable to identify any similar problems. Therefore, we concluded that the event was an isolated occurrence and no further actions to refurbish, replace, or increase the surveillance frequency of the PDS were planned.

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TEXT (If more space is required, use additional NRC Form 305A's) (17)

FIGURE 1
SIMPLIFIED DRAWING OF PRIMARY CONTAINMENT
INSTRUMENT GAS

