

## PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

P. O. BOX A

SANATOGA, PENNSYLVANIA 19464

(215) 327-1200 EXT. 2000

M. J. McCORMICK, JR., P.E.  
PLANT MANAGER  
LIMERICK GENERATING STATION

May 24, 1990  
Docket No. 50-353  
License No. NPF-85

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

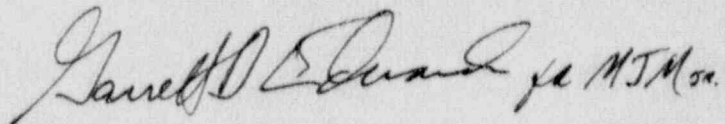
SUBJECT: Licensee Event Report  
Limerick Generating Station - Unit 2

This LER reports an unplanned actuation of the Primary Containment and Reactor Vessel Isolation Control System (an Engineered Safety Feature) due to a personnel error during installation of electrical relay test jacks.

Reference:	Docket No. 50-353
Report Number:	2-90-009
Revision Number:	00
Event Date:	April 25, 1990
Report Date:	May 24, 1990
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)(iv).

Very truly yours,



WAR: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 2										DOCKET NUMBER (2) 0 5 0 0 0 3 5 3										PAGE (3) 1 OF 0 4																			
TITLE (4) Unplanned actuation of the Primary Containment and Reactor Vessel Isolation Control System due to a personnel error during installation of electrical relay test jacks.																																							
EVENT DATE (5) MONTH DAY YEAR 0 4 2 5 9 0 9 0										LER NUMBER (6) YEAR SEQUENTIAL NUMBER REVISION NUMBER 0 0 9 0 0										REPORT DATE (7) MONTH DAY YEAR 0 5 2 4 9 0										OTHER FACILITIES INVOLVED (8) FACILITY NAMES DOCKET NUMBER(S) 0 5 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) 0 1 8 0										20.402(b) 20.405(a)(1) (i) 20.405(a)(1) (ii) 20.405(a)(1) (iii) 20.405(a)(1) (iv) 20.405(a)(1) (v)										20.405(e) 50.36(a)(1) 50.36(a)(2) 50.73(a)(2)(i) 50.73(a)(2)(ii) 50.73(a)(2)(iii) 50.73(a)(2)(iv) 50.73(a)(2)(v)										X 50.73(a)(2)(vi) 50.73(a)(2)(v) 50.73(a)(2)(vii) 50.73(a)(2)(viii)(A) 50.73(a)(2)(viii)(B) 50.73(a)(2)(ix) 73.71(b) 73.71(c) OTHER (Specify in Abstract below and in Text, NRC Form 306A)									
LICENSEE CONTACT FOR THIS LER (12) NAME G. J. Madsen, Regulatory Engineer, Limerick Generating Station																														TELEPHONE NUMBER 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 NRCDS										CAUSE SYSTEM COMPONENT MANUFACTURER REPORTABLE TO NRCDS																													
SUPPLEMENTAL REPORT EXPECTED (14) YES (If yes, complete EXPECTED SUBMISSION DATE) X NO																														EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR									

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

On April 25, 1990 an unexpected isolation of the Primary Containment Instrument Gas (PCIG) system occurred. The isolation signal was from the Primary Containment and Reactor Vessel Isolation Control System (PCRIVICS) which is an Engineered Safety Feature. The inadvertent isolation signal resulted from a utility employed system engineer installing test (banana) jacks on a relay in the PCRIVICS logic circuit. The three affected Primary Containment Isolation valves closed when temporary jumper wires, preventing the valve isolations, were removed. In response to the PCIG system isolation, Main Control Room (MCR) operators initiated the backup Instrument Air system supply. The isolation was reset and the PCIG system returned to service 46 minutes after the valves closed. The event was caused by failure of the system engineer to recognize and reset the isolation signal, prior to removing the temporary jumper wires. There were no adverse consequences due to the PCIG isolation. To prevent recurrence, the individuals involved were counseled and system engineers were reminded of the importance to perform adequate research and job planning in order to prevent challenges to safety systems.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 0	— 0 0 9	— 0 0	0 2	OF 0 4

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

Unit Conditions Prior to the Event:

Operating Condition: 1 (Power Operation)

Power Level: 80%

Description of the Event:

On April 25, 1990, at 1627 hours, an unexpected isolation of the Primary Containment Instrument Gas (PCIG) (EIIS:LD) system occurred. The isolation signal was from the Primary Containment and Reactor Vessel Isolation Control System (PCRVICS) (EIIS:JM) which is an Engineered Safety Feature (ESF).

The event occurred while utility employed plant system engineers were installing permanent test (banana) jacks on a relay in the PCRVICS logic circuit. The relay was inadvertently tripped creating the isolation signal. The affected primary containment isolation valves, (HV-59-202, HV-59-229B and HV-59-235) closed when temporary jumper wires were removed. The jumper wires had been installed to prevent closure of the valves from possible inadvertent isolation signals created during installation of the test jacks. The 'A' and 'B' PCIG compressors tripped on low suction pressure as designed, following closure of the suction valve HV-59-202. Main Control Room (MCR) operators were alerted to the event by annunciators (EIIS:ANN) for low PCIG header pressure following the compressor trips, and responded by initiating the backup Instrument Air (EIIS:LD) supply to the PCIG system. The system engineers assisted MCR operators in investigating and resetting of the PCRVICS isolation logic in accordance with General Plant Procedure GP-8, "Primary and Secondary Containment Isolation Verification and Reset." At 1712 hours, the backup Instrument Air supply was secured and the PCIG system was returned to normal service. The PCIG system remained isolated for 46 minutes.

A four (4) hour notification was made to the NRC at 1928 hours on April 25, in accordance with 10 CFR 50.72(b)(2)(ii) since the event resulted in the automatic actuation of the PCRVICS which is an ESF. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(iv).



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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TEXT (If more space is required, use additional NRC Form 300A's (17))

Consequences of the Event:

There was no release of radioactive material or adverse consequences due to the PCIG system isolation. The PCRVICES and the PCIG system components performed as designed. The backup Instrument Air system supply was available and used during the isolation in accordance with standard operating procedures. Additionally, the PCIG compressors and isolated portion of the system are not required for any safety related function.

Cause of the Event:

This event was caused by a cognitive personnel error. The system engineer failed to adequately review contingencies in the event that continuity in the circuit was lost while installing the test jacks. Installation of the relay permanent test jacks was done using instructions provided on a Troubleshooting Control Form (TCF) in accordance with Administrative Procedure A-41.1, "Troubleshooting Safety Related/Tech Spec Equipment." As required by Procedure A-41.1, the MCR operators were advised and the TCF documented the possibility of a PCIG system isolation during the activity. The TCF also specified installation and removal of the temporary jumper wires to "prevent closure of the affected isolation valves." However, the system engineer did not include explicit instructions on the TCF to check for and reset, if necessary, the PCRVICES isolation signal prior to removing the protective temporary jumper wires. The system engineer did not recognize the tripped condition of the PCRVICES isolation relays while installing the test jacks and consequently did not expect the PCIG isolation during the jumper removal restoration step.

Corrective Actions:

After observing the annunciator alarms for PCIG trouble, MCR operators responded by initiating the backup Instrument Air supply to the PCIG system when it was determined that this was an inadvertent system isolation. The system engineers that installed the test jacks assisted MCR operators in verifying the initiating cause of the isolation and the proper system response in accordance with General Plant Procedure GP-8, "Primary and

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

Secondary Containment Isolation Verification and Reset." The Instrument Air supply was secured and the PCIG system was returned to normal service at 1712 hours, 46 minutes after the isolation.

Actions Taken to Prevent Recurrence:

The system engineers involved were counseled and the event was reviewed during a System Engineer department meeting on April 26, 1990. In addition to describing the cause and consequences, engineers were reminded to perform adequate research and job planning for these type activities to prevent challenges to safety systems.

Previous Similar Occurrences:

LER 87-024 reported an unplanned actuation of the PCRVICES, caused by a system engineer inadvertently disconnecting an incorrect wire while performing work in accordance with Procedure A-41.1. On this occasion the individual was counseled and all system engineers reminded about the importance to fully investigate all systems that could be affected by their work on plant equipment. Due to the low frequency of incidents involving system engineers troubleshooting and performing work under the controls of Procedure A-41.1, this event is not considered to be a generic problem. For this reason the previous and current corrective actions are considered adequate.

Tracking Codes:

All - Failure to assess consequences of actions