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

September 26, 1990
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

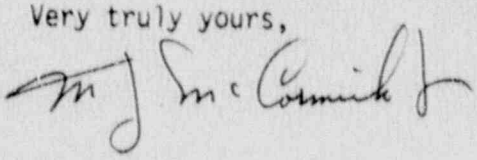
This LER reports an actuation of the Primary Containment and Reactor Vessel Isolation Control System, an Engineered Safety Feature, due to a problem with the design which does not facilitate testing and a personnel error resulting from a failure to take precautionary measures during installation of a test jack.

Reference:	Docket No. 50-352
Report Number:	1-90-017
Revision Number:	00
Event Date:	August 28, 1990
Report Date:	September 26, 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).

In a step to improve the quality and clarity of our LERs, the following changes have been made. The immediate corrective actions included in the 'Corrective Action' section of LERs have been incorporated into the 'Description' section. The long term corrective actions previously included in the 'Actions Taken to Prevent Recurrence' section have been included into the 'Corrective Actions' section. The 'Consequences of the Event' section has been retitled 'Analysis of the Event' to better describe the contents of this section.

Very truly yours,



JLP:cah

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

IE22
1/1

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

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TITLE (4) Engineered Safety Feature actuation of the Primary Containment and Reactor Vessel Isolation Control System due to problems with testing and personnel error.

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)
0 8	2 8	9 0	9 0	-	0 1 7	-	0 0	0 9	2 6	9 0		0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (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)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)			50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)			50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)			50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)			50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
G. J. Madsen, Regulatory Engineer, Limerick Generating Station	AREA CODE 2 1 5 3 2 7 - 1 2 0 1 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On August 28, 1990, at 0917 hours, while Unit 1 was at power, an Instrumentation and Controls (I&C) technician inadvertently shorted the power supply to an instrument rack which resulted in a blown fuse during the installation of a test jack. This loss of power caused by the blown fuse resulted in automatic Primary Containment and Reactor Vessel Isolation Control System (PCRVICS) actuations of Unit 1 isolation valves, Engineered Safety Features. The blown fuse was then replaced by the I&C technician. All PCRVICS isolations were reset and normal systems operations restored by the Main Control Room operators by 0935 hours. The consequences of this event were minimal. The Unit 1 PCRVICS isolation valves functioned as designed. The causes of this event were a design that does not facilitate testing and a failure to take precautionary measures during test jack installation. Several corrective actions will be implemented to minimize the possibility of similar events.

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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 Operating Condition was 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 August 28, 1990, a utility employed Instrumentation and Controls (I&C) technician was installing a test jack in the Unit 1 Primary Containment and Reactor Vessel Isolation Control System (PCRVICS, EIIS:JM) logic circuitry. This work was performed under the authorization of a Troubleshooting Control Form (TCF). At 0917 hours, he inadvertently shorted a power supply to an instrument rack which resulted in a blown fuse (EIIS:FU) which caused a loss of power to Unit 1 Division II instrumentation in card file C71A-Z1B which contains several trip units in the PCRVICS.

This loss of power caused by the blown fuse resulted in an automatic PCRVICS actuation, an Engineered Safety Feature (ESF) actuation, closing the outboard Primary Containment Isolation Valves in the following lines:

o Primary Containment radiation sampling lines

o Primary Containment hydrogen/oxygen sampling lines

At 0917 hours on August 28, 1990, licensed Main Control Room (MCR) operators observed annunciator indication in the MCR for isolations of the above listed PCRVICS valves. Additionally, the I&C technician immediately notified the MCR operators that the power supply was shorted.

The I&C technician replaced the blown logic power supply fuse. MCR operators then reset and restored the isolations by 0935 hours on August 28, 1990, in accordance with General Plant Procedure GP-8, "Primary and Secondary Containment Isolation Verification and Reset," returning the systems to pre-transient conditions.

A four (4) hour notification was made to the NRC on August 28, 1990, at 1117 hours in accordance with the requirements of 10CFR50.72(b)(2)(ii) since this event resulted in automatic actuation of an ESF. This report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(iv).

Analysis of the Event:

The consequences of this event were minimal. There was no release of radioactive material to the environment as a result of this event. The PCRVICS isolation valves functioned as designed under the loss of the system control logic power condition created by the blown power supply fuse.

Operators reset the isolations and restored the affected systems to their pre-transient conditions in accordance with plant procedures within 18 minutes. There were no adverse impacts on plant systems as a result of the valve isolations because the systems involved were only for monitoring. Functionally redundant Primary Containment hydrogen/oxygen sampling lines and analyzer packages were operable and unaffected by this event. Post-LOCA radiation monitors were operable and unaffected by this event and provided redundancy for Primary Containment radiation monitoring.

Immediate and follow-up actions to this type of event (i.e., loss of logic power) are provided in General Plant Procedure GP-8, "Primary and Secondary Containment Isolation Verification and Reset." Licensed operators receive requalification training to review and perform operator responses to transients of this type. This training provides practice on immediate operator actions and minimizes the length of time certain systems are isolated reducing the adverse impact on the plant. Therefore, as a result of adequate procedural guidance, prompt communications, training, and prompt operator actions, the event duration was limited and no adverse plant conditions developed.

Cause of the Event:

The cause of the event was a design that does not facilitate testing. The I&C technician was installing a test jack to provide easier and safer access for I&C personnel to perform testing in the future. I&C supervision recognized that this would also facilitate Rosemount transmitter environmental qualification change outs scheduled for the third refueling outage and avoid unintentional PCRVICS actuations. Installation of test jacks is a corrective action to prevent actuations such as the one reported in LER 1-86-049. While installing a test jack, the I&C technician inadvertently shorted the top two bus bars which are approximately one-eighth inch apart. Shorting the bus bars caused the fuse to blow and de-energize multiple instruments.

A review of the TCF was conducted in accordance with procedure A-41.1, "Troubleshooting Safety Related/Tech Spec Equipment," and various precautions were considered. However, this review was not completely exhaustive. A contributing causal factor was that this resulted in a failure to take precautions to minimize the potential of shorting bus bars. Although personnel knew that the work had the potential to cause a short, precautions such as de-energizing equipment or using insulating tape were not considered necessary prior to this event.

Corrective Actions:

This event was discussed at an I&C All Hands Meeting on September 14, 1990. This discussion informed technicians that if they feel that they are in a potential high risk situation, they should stop work and involve supervision.

This event has also been discussed at a Maintenance/I&C Engineering Supervisory Meeting on September 24, 1990. This discussion included possible alternative methods of installing test jacks including preplanning of engineering changes.

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

Insulating tape was used as an additional precaution following this event and the remaining test jacks were installed without incident.

Previous Similar Occurrences:

LERs 1-84-021, 1-84-030, 1-85-011, 1-85-012, 1-85-049, 1-85-074, 1-85-045, 1-87-021, 1-87-038, 1-87-006, 2-89-011, and 1-89-059 reported PCRVICS isolations due to a blown fuse as a result of personnel error. The corrective actions described in these LERs would not have prevented this event; this event occurred while implementing a preventative action.

Tracking Codes: B16 - Design does not facilitate testing
A99 - Other personnel errors