10 CFR 50.73

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION
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SANATOGA, PENNSYLVANIA 19464
(215) 327-1200 EXT. 2000

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

December 24, 1990
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 that resulted in the isolation of the Reactor Enclosure Heating, Ventilation and Air Conditioning system that resulted in a Primary Containment Reactor Vessel Isolation Control System (PCRVICS) actuation, an Engineered Safety Feature (ESF). The PCRVICS actuation caused two additional ESF actuations by initiating the Reactor Enclosure Recirculation System and the Standby Gas Treatment System as desic ed. This event was due to a personnel error that resulted in a blown fus.

Reference:	Docket Nos. 50-352 and 50-353
Report Number:	1-90-032
Revision Number:	00
Event Date:	December 4, 1990
Report Date:	December 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,

WGS:cah

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

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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)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Limerick Generating Station	0 5 0 0 0 3 5 2	1 OF 0 4

TITLE (4): This LER reports a condition that resulted in the isolation of the RE HVAC system that caused the actuation of the PCRVICS and resulted in initiation of REBS and SGTS

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)
1 2	0 4	9 0	9 0	- 0 3 2	- 0 0	1 2	2 4	9 0	LGS Unit 2	0 5 0 0 0 3 5 3
										0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 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 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 December 4, 1990, Main Control Room operations personnel received indication that an isolation of the Unit 1 Reactor Enclosure Heating Ventilation and Air Conditioning system, an Engineered Safety Feature (ESF) actuation, occurred as a result of a blown fuse in panel 10C623. This isolation resulted in a Primary Containment and Reactor Vessel Isolation Control System actuation, also an ESF actuation, and caused two additional ESF actuations to initiate as designed: the 'B' train of the Reactor Enclosure Recirculation System and the 'B' train of the Standby Gas Treatment System. The actual consequences of this event were minimal and all associated systems functioned as designed. The root cause of this event is unknown. However, we suspect that a contributing cause of this event was the inadvertent grounding of a lifted lead causing a power supply fuse to blow. This event is considered to be an isolated occurrence due to the circumstance surrounding the work (i.e., electrical separation rework, cable wrapping) being performed in panel 10C606. Therefore, the blown fuse was replaced and no further corrective actions are planned.

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(9-83)

Unit Conditions Prior to the Event:

Unit 1 Operating Condition was 4 (Cold Shutdown) at 0% Power Level.

Unit 2 Operating Condition was 1 (Power Operating) at a 100% Power Level.

Prior to the event, electrical jumpers were installed by Instrumentation and Control (I&C) personnel in panel 10C623 under the control of Administrative (A) Procedure A-41.1, "Troubleshooting Safety Related/Tech Spec Equipment." The jumpers were required to support the Installation Group electricians in the repair (i.e., cable wrapping) of an identified electrical separation deficiency in panel 10C606. These precautions were taken to prevent a Reactor Enclosure (RE) Heating, Ventilation and Air Conditioning (HVAC) system isolation from occurring. Also as a result of the electrical separation panel inspection, plant staff identified that one of the wires located near the wire requiring repair had a nick in its insulation and was to be replaced.

Description of the Event:

On December 4, 1990, at approximately 2111 hours, Main Control Room (MCR) operations personnel received a MCR annunciator indicating that an isolation of the Unit 1 RE HVAC system, an Engineered Safety Feature (ESF) actuation, had occurred. I&C personnel immediately informed MCR operations personnel that a fuse had blown in panel 10C623. This loss of power resulted in a Unit 1 Primary Containment and Reactor Vessel Isolation Controls System (PCRVICS:EIIS,JM) actuation, an ESF actuation, and caused two additional common plant ESF actuations to initiate as designed: the 'B' train of the Reactor Enclosure Recirculation System (RERS) and the 'B' train of the Standby Gas Treatment System (SGTS).

At 2114 hours, the electrical separation work in panel 10C606 was suspended and the 'B' RERS and 'B' SGTS fans were secured by licensed MCR operators. At 2130 hours, I&C personnel replaced the blown fuse in panel 10C623, B21-F101D, and licensed MCR operators reset the following PCRVICS group isolations in accordance with General Plant (GP) procedure GP-8, "Primary and Secondary Containment Isolation Verification and Reset":

- Primary Containment Purge Supply and Exhaust (EIIS:VA), and
- Primary Containment Exhaust to Reactor Enclosure Equipment Compartment Exhaust and Nitrogen Block Valves.

At 2132 hours, the 'B' train of RERS and the 'B' train of the SGTS were restored to the normal system line up in the automatic standby mode. In addition, at 2135 hours, the RE HVAC system isolation was reset and the system was returned

to service. All PCRVICS isolations and affected plant systems mentioned above were restored and placed into normal operating conditions within twenty-four minutes.

A four hour notification was made to the NRC on December 4, 1990, at 2400 hours in accordance with the requirement of 10CFR50.72(b)(2)(ii), since this event resulted in spurious automatic actuations of ESFs. Accordingly, this report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(iv).

Analysis of the Event:

The PCRVICS isolations and the initiations of the 'B' train of RERS and the 'B' train of SGTS functioned as designed under the loss of a logic power created by the blown power supply fuse. The PCRVICS isolations were reset and the associated ESF systems were restored to their normal operating modes in accordance with plant procedures and there was no adverse impact on other plant systems. There was no release of radioactive material to the environment as a result of this event.

The systems impacted by this event were aligned to their safety function mode and were performing their safety function in the event an accident had occurred.

In addition, if an actual transient at rated power had occurred, MCR operations personnel would have initiated immediate follow up actions to this type of event (i.e., Loss of Logic Power) in accordance with procedures E1BY160, "Loss of 'B' RPS and UPS Power," and GP-8. Licensed operators receive requalification training to review and perform operator response 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 impact on the plant. Therefore, as a result of adequate procedural guidance, training, and prompt operator actions, the duration of this type of event would be limited and no adverse plant conditions would develop.

Cause of the Event:

The root cause of this event is unknown. However, we suspect that a contributing cause of this event was due to a personnel error that resulted in an inadvertent grounding of a lead that was lifted during the repair of electrical separation deficiencies in panel 10C606.

On December 4, 1990, prior to the fuse blowing, Installation Group electricians were working in panel 10C606 in accordance with procedure A-41.1. This internal panel work was being performed to support the repair of an electrical separation deficiency.

However, while tracing panel wiring or lifting the lead from its termination point, the wire may have been inadvertently grounded and caused the fuse to blow. I&C and Installation Group personnel involved with this incident did not observe any arcing nor find any evidence of arcing. Although, after further review of the work and its surroundings, plant staff determined that the wire with the nicked insulation could have shorted to ground against a metal flex conduit while Installation Group electricians were tracing the panel wiring.

Corrective Actions:

This event is considered to be an isolated occurrence due to the circumstances surrounding the work being performed in panel 10C606. I&C and Installation Group personnel involved adequately followed and implemented the associated procedural requirements. Therefore, no further corrective actions will be implemented other than those indicated within the description of this LER.

Previous Similar Occurrences:

LERs 1-84-21, 1-84-30, 1-85-11, 1-85-12, 1-85-49, 1-85-74, 1-86-45, 1-87-21, 1-87-38, 1-89-06, and 2-89-11 also reported various isolations due to a blown fuse as a result of personnel error. However, these LERs did not involve a nicked wire that could have inadvertently grounded a circuit and caused a fuse to blow. Therefore, the corrective actions associated with the above listed LERs could not have prevented this event.

Tracking Codes: A99 - Other Personnel Error