10 CFR 50.73

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION
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J. DOERING, JR.
PLANT MANAGER
LIMERICK GENERATING STATION

December 11, 1991
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 (PCRVICS), an Engineered Safety Feature. This PCRVICS actuation was caused by a blown fuse as a result of an inadequate review concerning the application of a blocking permit to an isolation valve associated with a Primary Containment H2/O2 Combustible Gas Analyzer.

Reference:	Docket No. 50-352
Report Number:	1-91-026
Revision Number:	00
Event Date:	November 12, 1991
Report Date:	December 11, 1991
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,

J Doering

DMS: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)

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

TITLE (4) An Engineered Safety Feature actuation due to an inadequate review of a blocking permit for an isolation valve associated with a Primary Containment H2/O2 Combustible Gas Analyzer.

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 1	1 2	9 1	9 1	0 2 6	0 0	1 2	1 1	9 1		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 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 November 12, 1991, an electrical lead from a Primary Containment Isolation Valve (PCIV) in one of the sample lines to the H2/O2 Combustible Gas Analyzer (CGA) 10S206 was inadvertently grounded during maintenance activities, causing an actuation of the Primary Containment and Reactor Vessel Isolation Control System, an Engineered Safety Feature. The inadvertent grounding resulted in a loss of indication on the Main Control Room (MCR) panel 10C601 for other PCIVs associated with the sample lines to the CGA 10S206. A loss of valve position indication on several related valves is an indicator of a loss of electrical power to the valves. Since the PCIVs fail closed with a loss of electrical power, MCR personnel removed the CGA 10S206 from operation, and later discovered that a fuse had blown in panel 10C601 as a result of the inadvertent grounding. Within 23 minutes, the CGA 10S206 was returned to operable status. The actual consequences of this event were minimal. The cause of this event was personnel error resulting from an inadequate understanding of the full scope of the maintenance activities to be performed on the PCIV for the CGA 10S206. The personnel involved in this event were counseled regarding the proper development and review of a blocking permit. A Management Directive addressing this event and the proper development and review of blocking permits will be issued to plant personnel. A discussion of this event and its causes will be included in the next cycle of Licensed Operator Requalification Training.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Limerick Generating Station, Unit 1	0 5 0 0 0 3 5 2	9 1	— 0 2 6	— 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:

Unit 1 was in Operational Condition 1 (Power Operation) operating at 100% power level. A blocking permit was applied to the Primary Containment Isolation Valve (PCIV) (EIIS:ISV) SV-57-185, to allow performance of preventive maintenance activities to replace its solenoid coil. PCIV SV-57-185 was closed for the maintenance activities, and is one of the PCIVs located in the sample lines to the Primary Containment H2/O2 Combustible Gas Analyzer (CGA) 10S206 (EIIS:BB), which monitors the Primary Containment atmosphere for H2/O2 concentrations.

Description of the Event:

On November 12, 1991, at 2104 hours, during preventive maintenance activities to replace a solenoid coil for PCIV SV-57-185, an energized electrical lead from the position indication switch (EIIS:33) for PCIV SV-57-185 was inadvertently grounded. This resulted in a loss of indication on the Main Control Room (MCR) "Isolation" panel 10C601, for other PCIVs associated with the sample lines to the H2/O2 CGA 10S206. A loss of valve position indication on several related valves is an indicator of a loss of electrical power to the valves. Since the H2/O2 CGA PCIVs automatically fail closed with a loss of electrical power, MCR personnel removed the H2/O2 CGA 10S206 from operation to investigate the problem. While MCR personnel were investigating the problem, Maintenance personnel isolated and retaped the de-energized electrical leads from the position indication switch, and terminated the maintenance activities on PCIV SV-57-185 until a new blocking permit could be developed. As expected, MCR personnel discovered a blown fuse in panel 10C601, and by 2127 hours, on November 12, 1991, MCR personnel replaced the blown fuse, and the H2/O2 CGA 10S206 was returned to operable status. On November 14, 1991, under the direction of a new blocking permit, Maintenance personnel successfully completed the replacement of the solenoid coil for PCIV SV-57-185.

The inadvertent grounding of the electrical lead to PCIV SV-57-185 which caused the blown fuse, resulted in a Primary Containment and Reactor Vessel Isolation Control System (PCRVICS) actuation (EIIS:JM), an Engineered Safety Feature (ESF) (EIIS:JE). This PCRVICS actuation caused the following normally open PCIVs SV-57-184, 186, 190, and 195 for the sample lines to the Primary Containment H2/O2 CGA 10S206 to automatically close. Since PCIV SV-57-185 was closed prior to the event, the H2/O2 CGA 10S206 became unavailable to monitor the Primary Containment atmosphere for H2/O2 concentrations when the other PCIVs closed.

A four hour notification was made to the NRC at 0044 hours, on November 13, 1991, in accordance with the requirements of 10 CFR 50.72(b)(2)(ii) since this event resulted in the automatic actuation of an ESF. This LER is being submitted in accordance with the requirements of 10 CFR 50.73(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. The Primary

Containment H2/O2 concentrations remained at their normal levels throughout this event. The PCIVs isolated as designed to their fail-safe position as a result of the PCRVICS actuation. The H2/O2 CGA 10S206 was isolated from 2104 hours through 2127 hours on November 12, 1991, a period of 23 minutes. As a result of an unrelated event being reported in LER 1-91-027, the other Unit 1 H2/O2 CGA 10S205 was also isolated at 2104 hours, and remained isolated for a period of 27 hours. Therefore, both Unit 1 Primary Containment H2/O2 CGAs were coincidentally isolated for a period of 23 minutes, well within the time constraints of Technical Specifications (TS). The TS ACTION for 2 inoperable Primary Containment CGAs requires the CGAs to be restored to operable status within 48 hours or be in hot shutdown in the next 12 hours

Cause of the Event:

The cause of this event was personnel error resulting from an inadequate understanding of the full scope of the maintenance activities for the replacement of the solenoid coil for PCIV SV-57-185 by the System Engineer and the MCR Permit Supervisor. To adequately block PCIV SV-57-185 for replacement of its solenoid coil, both the solenoid coil and the position indication switch should have been de-energized, as required by the Preventive Maintenance Procedure, PMQ-600-039, "Environmental Qualification Maintenance for Target Rock Solenoid Valves." However, only the solenoid coil was de-energized under the blocking permit, and an electrical lead from the position indication switch which remained energized, was inadvertently grounded.

A discussion of the cause of this event is as follows. The blocking permit required a Temporary Circuit Alteration (TCA) to be applied prior to beginning the replacement of the solenoid coil for PCIV SV-57-185. The System Engineer was requested by the MCR Permit Supervisor to develop and apply a TCA to allow replacement of the solenoid coil for PCIV SV-57-185. Due to inadequate communication between the System Engineer and the Permit Supervisor in discussing the full scope of the work (e.g., procedure PMQ-600-039, which was listed in the job description section of the Maintenance Request Form (MRF) for PCIV SV-57-185, was not discussed), the System Engineer and the Permit Supervisor did not recognize that the position indication switch also needed to be de-energized. As a result, the Permit Supervisor signed the blocking permit indicating that the permit had been reviewed for technical accuracy and was approved for application. Administrative Guideline, AG-30, "Technical Review For Application of Permits," exists to assure that plant personnel requested by the Permit Supervisor to develop a TCA for a blocking permit, perform a complete technical review of the suggested block. Guideline AG-30 also assures appropriate discussions are conducted between the System Engineer, the Permit Supervisor, and the responsible work group individual/job leader to ensure that the blocking permit is technically accurate. Since the System Engineer did not utilize guideline AG-30, procedure PMQ-600-039 was not reviewed, and an inadequate TCA was applied to PCIV SV-57-185. The need to de-energize the position indication switch was not identified during the approval of the TCA, since the scope of the work presented was based upon the System Engineer's understanding of the maintenance activity.

A contributing factor to the cause of this event was the failure of the Maintenance technician to verify that the electrical leads from the position indication switch were de-energized prior to lifting the electrical leads. Although procedure PMQ-600-039 does not require that the electrical leads be tested for voltage, safety training, which is given to all Maintenance technicians, instructs craft personnel to ensure that electrical equipment is de-energized prior to working on it.

Corrective Actions:

1. The System Engineer involved in this event was counseled on the importance of utilizing guideline AG-30 when developing and reviewing TCAs for blocking permits.

2. A Technical Section All Hands Meeting was conducted to discuss this event and to emphasize the importance of utilizing guideline AG-30.

3. The Maintenance technician involved in this event was counseled on the responsibility of ensuring electrical equipment is de-energized prior to working on it.

4. A memo was issued on December 3, 1991, from the Assistant Superintendent of Operations to all MCR Permit Supervisors, Coordinators, and Writers reinforcing the need to perform a thorough review of a blocking permit prior to releasing the permit for application.

5. A Management Directive addressing guideline AG-30 is expected to be developed and distributed to first line supervision of all System Engineers by December 13, 1991. This Management Directive will discuss this event, and will describe the importance and purpose of utilizing guideline AG-30 during the development and review of particular blocking permits.

6. A discussion of this event and its causes will be included in the next cycle of Licensed Operator Requalification CORE (Current Operations Related Events) Training which is expected to begin March 1992.

Previous Similar Occurrences:

None

Tracking Codes: A2 Failure to Follow Implementing Procedures
A7 Failure to Properly Communicate