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Abstract: 85-024

On February 8, 1985, at 1:45 a.m., with Unit 1 in cold shutdown, a spurious half-scram signal on the 'B' Reactor Protection System (RPS) channel occurred along with the outboard isolation of various Nuclear Steam Supply Shutoff System (NSSSS) subsystems. The event occurred as the result of a temporary loss of power to the 1B Reactor Protection System and Uninterruptible Power System (UPS) 120 VAC Distribution Panel No. 1BY160. The RPS and NSSSS systems performed as designed during the loss of power transient. Voltage fluctuations from a voltage regulator board in the static inverter caused an overvoltage condition resulting in the trip of the electrical supply breakers to the IBY160 panel. The voltage fluctuations were caused by high ambient temperatures in the static inverter cabinet. The half-scram signal and NSSSS isolations were reset. Hoods and fans were installed in the top of the inverter cabinets to circulate the air and reduce the temperature in the cabinet.

mAC form 364

	LICENSEE EVENT REPORT (LER) TEXT CONTINUATION								CULATORY COMMISSION OMB NO 3150-0104		
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## Description of the Event:

On February 8, 1985, at 1:45 a.m., with Unit 1 in cold shutdown, a half-scram signal on the 'B' Reactor Protection System (RPS) channel occurred along with various outboard Nuclear Steam Supply Shutoff System (NSSSS) isolations. The Reactor Water Cleanup system, Drywell Chilled Water system, Instrument Gas system, Reactor Enclosure and Refuel Floor HVAC systems, and the RHR Shutdown Cooling system isolated. Additionally, both reactor recirculation pumps tripped. The event occurred as a result of a temporary loss of power to the 1B Reactor Protection System (RPS) and Uninterruptible Power System (UPS) 120 VAC Distribution Panel No. 1BY160. After the event, the half-scram signal was reset and all affected systems were returned to normal.

## Consequences of the Event:

The Reactor Protection System and Nuclear Steam Supply Shutoff System performed as designed during the loss of power transient. Reactor coolant recirculation was terminated due to the reactor recirculation pump end-of-cycle trip. There were no adverse effects on reactor water chemistry as a result of the RWCU isolation. There were no adverse consequences as a result of this event.

# Cause of the Event:

A voltage recorder, installed for troubleshooting prior events (LER's 84-039 and 85-007), indicated that the cause of the loss of power was voltage fluctuations from the voltage regulator board in the 'B' RPS and UPS static inverter. The fluctuations caused a temporary overvoltage condition which resulted in the trip of the lBY160 panel electrical supply breakers. The loss of power to the lBY160 panel caused the 'B' RPS and outboard NSSSS circuits to de-energize. On de-energization, RPS initiated a half-scram and an end-of-cycle trip of both reactor recirculation pumps and closure of outboard NSSSS subsystem valves.

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VRC Form 366A

This event resulted from high ambient temperatures in the Inverter Room (which houses three 30kVA static inverters and four transformers) and poor air circulation through the static inverter cabinets. The high temperatures caused drifting setpoints and unacceptable tolerances on the inverter printed circuit boards.

The high ambient temperatures had been identified prior to this event. A modification was initiated on December 18, 1984 to install hoods and fans on the inverter cabinets to reduce the temperature.

### Corrective Actions:

The half-scram and NSSSS isolations were reset by 2:40 a.m. The potentiometers on the voltage regulator board and master logic board in the IB static inverter were adjusted to produce the proper outputs. The setpoint of the Inverter Room temperature control was changed to reduce the temperature of this room approximately 10 degrees Fahrenheit. The modification to install hoods and fans in the top of all static inverter cabinets in the Inverter Room to increase the air flow and thereby reduce the temperature was completed on February 15, 1985.

## Previous Similar Occurrences:

LGS LER's: 84-005, 84-039, 85-007-

#### PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

March 8, 1985

Docket No. 50-352

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

SUBJECT:

Licensee Event Report

Limerick Generating Station - Unit 1

This LER concerns the half-scram and Nuclear Steam Supply Shutoff System isolations resulting from a temporary loss of power to the 1B Reactor Protection System and Uninterruptible Power System 120V Panel.

Reference: Docket No. 50-352
Report Number: 85-024

Revision Number: 00

Event Date: February 8, 1985 Report Date: March 8, 1985

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,

W. T. Ullrich

Superintendent

Nuclear Generation Division

cc: Dr. Thomas E. Murley, Administrator, Region I, USNRC J. T. Wiggins, Senior Site Inspector See Service List

Judge Helen F. Hoyt Judge Jerry Harbour Judge Richard F. Cole Troy B. Conner, Jr., Esq. Ann P. Hodgdon, Esq. Mr. Frank R. Romano Mr. Robert L. Anthony Ms. Phyllis Zitner Charles W. Elliott, Esq. Zori G. Ferkin, Esq. Mr. Thomas Gerusky Director, Penna. Emergency Management Agency Angus Love, Esq. David Wersan, Esq. Robert J. Sugarman, Esq. Martha W. Bush, Esq. Spence W. Perry, Esq. Jay M. Gutierrez, Esq. Atomic Safety & Licensing Appeal Board Atomic Safety & Licensing Board Panel Docket & Service Section (3 Copies) James Wiggins Timothy R. S. Campbell