

LICENSEE EVENT REPORT (LER)

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W. C. Birely, Senior Engineer - Licensing Section																																																																																																																																																					
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ABSTRACT (Limit to 1000 words, i.e., approximately fifteen single-space typewritten lines) (16)

Abstract: 2-85-28

On December 27, 1985 with Unit 2 shutdown and in the refuel mode, smoke was observed coming from a relay (G.E. CR-120) in the cable spread room. The fuse supplying the relay coil was removed, and found to be blown. The leads to the relay coil were then removed and the smoking stopped. A few minutes later, a Reactor Water Cleanup (RWCU) system outboard isolation and main steam line drain outboard isolation occurred.

Investigation revealed that some stray strands of wire in contact with DC voltage had caused the fuse to blow and two relays to be damaged, preventing the RWCU outboard isolation from occurring when the fuse blew. The relay moved to the de-energized position a few minutes after the coil leads were disconnected, thus causing the isolations.

The damaged relays were replaced and the stray strands of wire were properly connected on December 27, 1985.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES 8/31/86

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TEXT (If more space is required, use additional NRC Form 368a) (17)

Unit Conditions Prior to Event

0% Power
Refuel Mode

Description of the Event:

On December 27, 1985 an operations engineer responded to a report of smoke in the cable spread room (elevation 150 feet) and found smoke coming from relay 16A-K60. The fuse (which was already blown) supplying the relay coil was removed, but the smoking continued. The leads to the relay coil were removed and the smoking stopped. Relay 16A-K63, which is in the same circuit, was also found damaged by excessive heat.

A few minutes later, at 0845 hours, the Primary Containment Isolation System (PCIS) initiated a Reactor Water Cleanup (RWCU) system outboard isolation, and main steam line drain outboard isolation. The RWCU system outboard isolation valve MO-2-12-18, and regenerative heat exchanger outlet valve, MO-2-12-68, closed and the RWCU pump tripped. The main steam line drain valve, MO-2-1-77, also closed.

By design the RWCU isolation should have occurred when the fuse, 16A-F18, blew. Investigation revealed that the circuit had been overloaded and the fuse blew due to stray strands of wire completing a circuit between contact 2 and 4 of relay 16A-K27. This condition also prevented the isolation from occurring when the fuse blew.

Relays 16A-K60 and 16A-K63, and fuse 16A-F18 were replaced and tested. The stray strands of wire were properly connected. The RWCU system was restored to normal at approximately 1900 hours on December 27, 1985 after being out of service for approximately 10 hours.

The EIIS codes for the affected systems are JM, PCIS and CE, RWCU system.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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TEXT (if more space is required, use additional NRC Form 366a) (17)

Consequences of the Event:

When the fuse blew the system should have "failed safe" and initiated the RWCU outboard isolation. However, containment integrity was not jeopardized because of the redundancy provided by other tested valves on the Feedwater System and RWCU system piping. These valves are the check valve on the "B" feedwater line, 2-6-28B, and the RWCU System inboard isolation valve, MO-2-12-15.

Primary coolant system water chemistry was not adversely affected by the RWCU system isolation.

Cause of the Event:

A few stray strands of wire that were supposed to be connected to terminal 2 of relay 16A-K27 (G.E. CR-120) came in contact with, and fused to, terminal 4 of relay 16A-K27. This introduced DC voltage into the AC circuit (see attachment). The DC voltage had a return path when a positive ground occurred on the "B" and "D" batteries. DC current subsequently damaged the AC coils of relays 16A-K60 and 16A-K63 by excessive heat. Relay 16A-K27 was not damaged.

The RWCU isolation did not occur when the fuse blew because relays 16A-K60 and 16A-K63 remained energized with the DC current.

The isolations did not immediately occur when the leads to the coil of relay 16A-K60 were removed because the relay stuck in the energized position due to the damage it experienced. A few minutes later the relay moved to the de-energized position and initiated the isolations.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMS NO. 3190-0104
EXPIRES 8/31/85

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Peach Bottom Atomic Power
Station - Unit 2

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TEXT (If more space is required, use additional NRC Form 365a) (17)

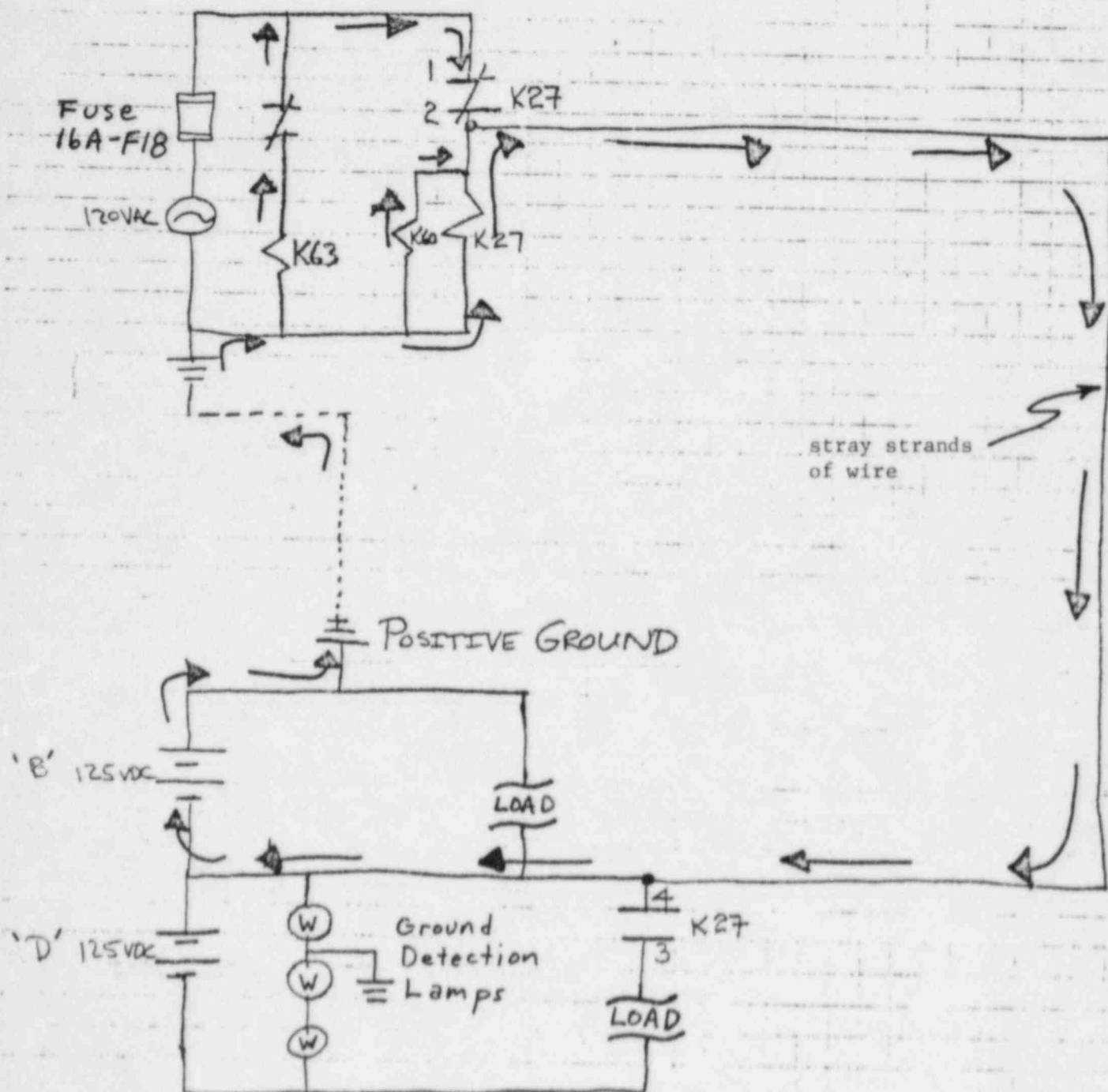
Corrective Actions:

On December 27, 1985 relays 16A-K60 and 16A-K63, and fuse 16A-F18 were replaced and tested, and the stray strands of wire on the 16A-K27 relay were properly connected. The battery ground was eliminated on December 27, 1985 at approximately 1400 hours.

To avoid recurrence of this problem, all safety-related, feedwater, and ventilation G.E. CR-120 relays were inspected for stray strands of wire in contact with other terminals. No problems were found.

Previous Similar Occurrences:

None.



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February 3, 1986

Docket No. 50-277

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Washington, DC 20555

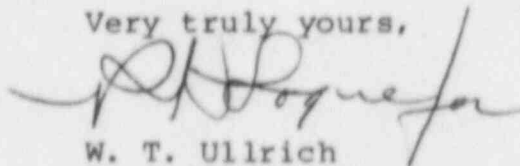
SUBJECT: Licensee Event Report
Peach Bottom Atomic Power Station - Unit 2

This LER concerns an outboard isolation of the Reactor Water Cleanup System and main steam line drains. Stray strands of wire and a battery ground initiated the event.

Reference:	Docket No. 50-277
Report Number:	2-85-28
Revision Number:	00
Event Date:	December 27, 1985
Report Date:	February 3, 1986
Facility:	Peach Bottom Atomic Power Station RD 1, Box 208, Delta, PA 17314

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv). We regret the delayed submittal of this LER and any inconvenience it may have caused. Submittal was delayed while corrective actions were being completed.

Very truly yours,



W. T. Ullrich
Superintendent
Nuclear Generation Division

cc: Dr. Thomas E. Murley, Administrator, Region I, USNRC
T. P. Johnson, NRC Resident Inspector

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