

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION

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KEN POWERS
PLANT MANAGER

February 1, 1992

Docket No. 50-278

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

SUBJECT: License Event Report
Peach Bottom Atomic Power Station - Unit 3

This LER concerns a Reactor Core Isolation Cooling system control logic fuse failure due to a failed light socket.

Reference:	Docket No. 50-278
Report Number:	3-92-001
Revision Number:	00
Event Date:	01/03/92
Report Date:	02/01/92
Facility:	Peach Bottom Atomic Power Station RD 1, Box 208, Delta, PA 17314

This LER is being submitted voluntarily.

Sincerely,

cc: J. J. Lyash, USNRC Senior Resident Inspector
T. T. Martin, USNRC, Region I

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S PDR

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST. SEE THE FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P&R), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Peach Bottom Atomic Power Station - Unit 3 DOCKET NUMBER (2) 0 5 0 0 0 2 1 7 8 PAGE (3) 1 OF 0 4

TITLE (4) Reactor Core Isolation Cooling System Control Logic Fuse Failure due to a Failed Light Socket

EVENT DATE (5)			LER NUMBER (6)		PERIOD DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES
01	03	92	92	001	00	02	01	92	0 5 0 0 0
									0 5 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

OPERATING MODE (9) N	20.402(a)	20.405(a)	50.72(a)(2)(iv)	73.71(a)
POWER LEVEL (10) 0 1 0 0	20.406(a)(1)(ii)	50.72(a)(1)	50.73(a)(2)(iv)	73.71(a)
	20.406(a)(1)(iii)	50.72(a)(2)	50.73(a)(2)(iv)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract Below and in Text, NRC Form 306A)
	20.406(a)(1)(iv)	50.72(a)(2)(i)	50.73(a)(2)(iv)(A)	Voluntary
	20.406(a)(1)(v)	50.72(a)(2)(ii)	50.73(a)(2)(iv)(B)	
	20.406(a)(1)(vi)	50.72(a)(2)(iii)	50.73(a)(2)(iv)(C)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Albert A. Fulvio, Regulatory Engineer TELEPHONE NUMBER 717 415 6117

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

CAUSE	SYSTEM	COMPONENT	MANUFAC. TYPER	REPORTABLE TO NRCDS	CAUSE	SYSTEM	COMPONENT	MANUFAC. TYPER	REPORTABLE TO NRCDS
X	N	I	L D	I 4 9	Y				

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If you complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

ABSTRACT (Limit to 1000 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 01/03/92 at 0005 hours, during the performance of the Reactor Core Isolation Cooling (RCIC) System operating procedure used to reset the low pressure isolation during reactor startup, the Division I control power fuse failed when the logic reset switch was depressed as specified in the procedure. Subsequently, on 01/04/92, the Division I control power fuses failed when the logic reset switch was depressed as specified in a surveillance test. The loss of power to the control circuit caused the Condensate Storage Tank low level relay to de-energize which caused the RCIC Torus suction valves to automatically open. The cause of the RCIC control logic fuse failure has been determined to be the result of a shorted status light socket in the RCIC control logic. A review of the status lights in this and other systems will be performed to determine if the voltage spikes that occur will adversely affect the function of the control logic. No actual safety consequences occurred as a result of this event. There were three previous similar events identified.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-600), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20548, AND TO THE PAPERWORK REDUCTION PROJECT (3950-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 3	DOCKET NUMBER (2) 0 8 0 0 0 2 7 8	LER NUMBER (3)			PAGE (3)		
		YEAR	REGULATIONAL NUMBER	REGULATIONAL NUMBER			
		9 2	— 0 0 1	— 0 0	0 2	OF	0 4

TEXT IF more space is required, use additional NRC Form 366A (1/77)

Requirements of the Report

This report is being submitted voluntarily.

Unit Conditions at Time of Events

Unit 3 was in the "STARTUP" mode at 70 psig on 01/03/92 and 160 psig on 01/04/92. There were no systems, structures, or components that were inoperable that contributed to the event.

Description of the Events

On 01/03/92 at 0005 hours, during the performance of the Reactor Core Isolation Cooling (RCIC) System (E11S:BN) operating procedure used to reset the low pressure isolation during reactor startup, the Division I control power fuse (13A-F2) failed when the logic reset switch was depressed as specified in the procedure. The loss of power to the Division I control circuit caused the Condensate Storage Tank (CST) low level relay to de-energize which caused the RCIC Torus suction valves (MO-3-13-39 and MO-3-13-41) to automatically open. The RCIC control logic fuse was immediately replaced and the operating procedure was then completed satisfactorily.

Subsequently, on 01/04/92 at 1723 hours, during the performance of a RCIC system Logic System Functional Test (LSFT), the Division I control power fuses (13A-F1 and 13A-F2) failed when the logic reset switch was depressed as specified in the LSFT. The loss of power to the Division I control circuit caused the CST low level relay to de-energize which caused the RCIC Torus suction valves to automatically open. At this time, it was believed that this condition jeopardized the Primary Containment Integrity since these two Torus suction valves would not stay closed. The LSFT was terminated and troubleshooting immediately commenced. The RCIC system was declared inoperable at 1830 hours since the control logic was de-energized. The appropriate Technical Specification Limiting Condition of Operation (LCO) was entered. Since the Torus suction valve automatic closure was defeated in this condition, the NRC was notified of the event via ENS at 0330 hours on 1/5/92. Further investigations revealed that the Torus suction valve closure signals are not intended to satisfy the PCIS Group 5 isolation requirements. An investigation identified a failed status light socket (13A-DS063)(E11S:1L) in the RCIC control logic. The status light was manufactured by Dialco. The failed status light socket was replaced and the RCIC control logic fuses were replaced. The LSFT was then completed satisfactorily at 0115 hours on 1/6/92 and the appropriate LCO was exited.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH, 7-530, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20548 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Peach Bottom Atomic Power Station Unit 3	0 6 0 0 0 2 7 8	9 2	0 0 1	0 0	0 3	OF 0 4

TEXT (if more space is required, use additional NRC Form 306A's) (17)

Cause of the Events

The cause of the RCIC control logic fuse failure has been determined to be the result of a shorted status light socket in the RCIC control logic. It is believed that the status light is subjected to normally occurring voltage spikes from the RCIC control logic when several DC relay coils are de-energized simultaneously. The relay coils de-energize when the Division 1 reset pushbutton is depressed as specified in the operating procedure and the LSFT. A review of the status lights in this and other systems will be performed to determine if the voltage spikes that occur will adversely effect the function of the control logic.

Analysis of Events

No actual safety consequences occurred as a result of this event.

The isolation provisions for penetrations like the RCIC and HPCI Torus suction lines consist of a suppression pool water seal, one isolation valve outside containment, and a closed system outside containment. The water seal provides an independent and redundant barrier which assures that containment isolation is maintained.

The Primary Containment Isolation System (PCIS)(EIIS:JM) Group 5 isolation capability is intended to mitigate the consequences following a RCIC steam line break. This isolation will close the RCIC steam line isolation valves after a break. This is accomplished by high steam flow differential pressure, RCIC steam line area high temperature, and RCIC steam line low pressure instrumentation. The Torus suction valves closure signals are not intended to satisfy the PCIS Group 5 isolation requirements and are not required to remove RCIC from service.

Additionally, if RCIC operation would have been required with the fuse failed, the High Pressure Coolant Injection (HPCI) System (EIIS:BJ) was operable to provide adequate core cooling. The Automatic Depressurization System (EIIS:RV) was also operable, if required, to reduce reactor (EIIS:RPV) pressure to allow Low Pressure Coolant Injection (EIIS:BO) Systems to inject.

Corrective Actions

After discovery of the event, the failed RCIC status light and the RCIC control logic fuses were replaced.

The pertinent information from this event has been provided to the Control Room Operators. Additional instructions will be provided to the Control Room Operators to address the actions to be taken to establish Torus suction valve manual control if the RCIC or HPCI control circuit becomes de-energized.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATES TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-500), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0042), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 2 7 8 9 2	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0 0 1	0 0	0 4	OF	0 4

TEXT (if more space is required, use additional NRC Form 386A's) (17)

Additionally, a review of similar applications of Dialco status lights in this and other systems will be performed to determine if voltage spikes that occur will adversely affect the function of the control logic.

Previous Similar Events

There were three previous similar events (LER 3-84-003, 3-86-006, and 3-91-012) identified which involved shorts in the control logic status lights.

LER 3-84-003 reported an event in which a Core Spray Division II light socket shorted as a result of a status light socket rotation in the panel. The corrective actions taken did not result in any design modifications which may have prevented this event.

LER 3-86-006 reported an event in which another Core Spray Division I light socket shorted due to a lead disconnection. The corrective actions taken involved repairing this light only. Therefore, this corrective action could not have been expected to have prevented this event.

LER 3-91-012 reported an event in which a Core Spray Division II light socket shorted as a result of rotation of the status light socket in the panel. The corrective actions to be taken will involve the review of this light socket and other similar applications. Since the review has not been completed yet, the corrective action could not have prevented this event.