



PECO ENERGY

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8/25/95

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

Docket No. 50-278

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

This LER concerns a unplanned scram on high reactor water level when the "A" Reactor Feed Pump speed unexpectedly increased.

Reference:	Docket No. 50-278
Report Number:	3-95-003
Revision Number:	00
Event Date:	07/30/95
Report Date:	08/28/95
Facility:	Peach Bottom Atomic Power Station RD1, Box 208, Delta, PA 17314

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv).

Sincerely,

GDE/GAJ:gaj

enclosure

cc: R. A. Burricelli, Public Service Electric & Gas  
R. R. Janati, Commonwealth of Pennsylvania  
INPO Records Center  
T. T. Martin, US NRC, Administrator, Region I  
R. I. McLean, State of Maryland  
W. L. Schmidt, US NRC, Senior Resident Inspector  
A. F. Kirby III, DelMarVa Power  
H. C. Schwemm, VP - Atlantic Electric

CCN 95-14069

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## LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, 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)

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PAGE (3)

TITLE (4)

Unit 3 Scram when the "A" Reactor Feed Pump Speed Increased

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)
07	30	95	95	003	000	08	25	95		0 5 0 0 0 0 0 0
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8. (Check one or more of the following) (11)								
N		20.402(b)		20.405(c)		X		50.73(a)(2)(iv)		73.71(b)
POWER LEVEL (10)		0 1 7 0		20.405(a)(1)(i)				50.73(a)(2)(v)		73.71(c)
				20.405(a)(1)(ii)				50.73(a)(2)(vi)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)
				20.405(a)(1)(iii)				50.73(a)(2)(vii)		
				20.405(a)(1)(iv)				50.73(a)(2)(viii)(A)		
				20.405(a)(1)(v)				50.73(a)(2)(viii)(B)		
								50.73(a)(2)(ix)		

LICENSEE CONTACT FOR THIS LER (12)

NAME

Anthony J. Wasong, Manager-Experience Assessment

TELEPHONE NUMBER

AREA CODE

7 1 7 4 5 6 + 1 7 0 1 4

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs

SUPPLEMENTAL REPORT EXPECTED (14)

☐ YES (If yes, complete EXPECTED SUBMISSION DATE) ☒ NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On 7/30/95, "A" Reactor Feed Pump (RFP) speed unexpectedly started to increase and resulted in increased feedwater flow to the reactor core. The "C" RFP speed automatically decreased to compensate but reactor water level continued to increase. This condition caused the reactor water level to reach the high water level Main Turbine trip setpoint. The Main Turbine trip caused a closure of the Turbine Stop Valves which is an input to the Reactor Protection System (RPS) scram logic. Immediately following the scram, Primary Containment Isolation System (PCIS) Group II/III isolations occurred and the "C" RFP was used to restore and maintain reactor water level. The PCIS and scram logics were reset and the affected systems were restored to the appropriate configuration. The cause of the scram was that a Main Turbine trip occurred due to a high reactor water level condition. Troubleshooting revealed that the "A" RFP Motor Control Unit (MCU) failed causing an increase in the "A" RFP speed. Additional troubleshooting was performed which determined that the Firing Circuit within the "A" MCU failed. The exact cause of the Firing Circuit failure has not been determined yet but a Failure Analysis is being performed. Based on the results of the Failure Analysis, generic implications will be considered. Following replacement of four electronic cards within the Firing Circuit, the instrument loop was tested satisfactorily. No previous similar events have been 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-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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Unit 3

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Requirements of the Report

This report is being submitted pursuant to 10 CFR 50.73 (a)(2)(iv) due to Engineered Safety Feature (ESF) actuations.

Unit Conditions at Time of Event

Unit 3 was in the "RUN" mode at 70% of rated thermal reactor power. There were no inoperable systems, structures, or components that contributed to the event. The "B" Reactor Feed Pump was not inservice at the time of the event.

Description of the Event

On 7/30/95 at 0640 hours, "A" Reactor Feed Pump (RFP) speed unexpectedly started to increase. This resulted in increased feedwater flow to the reactor core. The "C" RFP speed automatically decreased to compensate for the "A" RFP speed change but reactor water level continued to increase. This condition caused the reactor water level to reach the high water level Main Turbine trip setpoint (+45 inches). At 0642 hours, the Main Turbine trip caused a closure of the Turbine Stop Valves which is an input to the Reactor Protection System (RPS) (EHS:JC) scram logic. Immediately following the scram, Primary Containment Isolation System (PCIS) (EHS:JM) Group II/III isolations occurred as expected when Reactor water level momentarily dropped below 0" as a result of void collapse upon insertion of the control rods. The "C" RFP was used to restore and maintain reactor water level. The PCIS logics were reset and the affected systems were restored to the appropriate configuration. In addition, the RPS scram logic was reset at 0730 hours. The NRC was notified of the event at 0746 hours.

Cause of the Event

The cause of the scram was that a Main Turbine trip occurred due to a high reactor water level condition. Troubleshooting revealed that the "A" RFP Motor Control Unit (MCU) (see attached figure) failed causing an increase in the "A" RFP speed. This resulted in the high reactor water level condition.

Additional troubleshooting was performed which determined that the Firing Circuit within the "A" MCU failed. The MCU Firing Circuit drives the RFP Motor Gear Unit (MGU) which regulates RFP speed.

The exact cause of the Firing Circuit failure has not been determined yet but a Failure Analysis is being performed at a PECO Energy Test Facility. Based on the results of the Failure Analysis, generic implications will be considered and corrective actions will be implemented as appropriate.

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-53C), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The feedwater control system is designed to compensate for an unexpected increase in the speed of a RFP by automatically decreasing the speeds of the other RFPs. However, with the reactor at only 70% power and the "A" RFP at full speed during this event, the "A" RFP alone provided more water to the reactor than was required to maintain normal reactor water level. Manual actions to decrease flow such as manually reducing "A" RFP speed and placing the "A" RFP on the hydraulic jack were started but was unsuccessful due to the rapid increase in reactor water level.

Analysis of Event

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

All isolations and initiations functioned per design. Had this event occurred at another power level, isolations and initiations would have also functioned per design. In addition, having the "B" RFP in service would not have prevented this situation or mitigated the consequences of this event.

Corrective Actions

After the scram occurred, the appropriate PCIS and RPS scram logics were reset and the affected systems were restored to the appropriate configuration.

Following replacement of four electronic cards within the Firing Circuit, the instrument loop was tested satisfactorily.

A Failure Analysis is being performed on the electronic cards at a PECO Energy Test Facility to determine the exact cause of the failure. Based on the results of the Failure Analysis, generic implications will be considered and corrective actions will be implemented as appropriate.

In addition, a modification is being considered which may replace the firing circuits with an improved digital logic. The modification is currently in the design stage and is planned for a future refueling outage.

Previous Similar Events

No previous similar events have been identified which involved problems associated with the Firing Circuit.



LICENSEE EVENT REPORT (LER)  
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FACILITY NAME (1)

Peach Bottom Atomic Power Station  
Unit 3

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YEAR SEQUENTIAL REVISION  
NUMBER NUMBER NUMBER

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TEXT (if more space is required, use additional NRC Form 366A's) (17)

