



PEACH BOTTOM--THE POWER OF EXCELLENCE

**PHILADELPHIA ELECTRIC COMPANY**

PEACH BOTTOM ATOMIC POWER STATION

R. D. 1, Box 208

Delta, Pennsylvania 17314

(717) 456-7014

December 19, 1990

Docket No. 50-278

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

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

This revised LER is being submitted as result of a completed evaluation of long term corrective actions. The LER concerns a Reactor Water Cleanup System configuration deficiency due to an error in the Fire Protection Program analysis.

Reference:	Docket No. 50-278
Report Number:	3-89-012
Revision Number:	01
Event Date:	12/22/89
Report Date:	12/19/90
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)(ii).

Sincerely,

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

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S PDR

bcc: R. A. Burricelli, Public Service Electric & Gas  
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LICENSEE EVENT REPORT (LER)

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

TITLE (4) **Plant Configuration Outside the Design Basis Due to a Fire Protection Program Analysis Deficiency**

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	2	2	8	9	8	9	0	1	2	0	1	2	1	9	9	0	0	5	0	0	0

OPERATING MODE (8) **N** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

20.402(b)	20.405(e)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(e)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 302-4)
20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME **A. A. Pulvio, Regulatory Engineer** TELEPHONE NUMBER **7 1 7 4 5 6 - 7 0 1 4**

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

ABSTRACT (Limit to 3400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 22, 1989, as a result of a review of the Fire Protection Program (FPP) safe shutdown analysis, it was determined that the potential existed for a loss of reactor coolant inventory in Unit 3 beyond the makeup capability of the Reactor Core Isolation Cooling System relied upon in the FPP analysis for a fire in fire area 13N. A fire in this fire area is postulated to cause Reactor Water Cleanup (RWCU) electrically controlled high/low pressure interface valves to spuriously open resulting in loss of reactor coolant through the RWCU reject line. The cause of this design deficiency was the misapplication of a previous analysis for a stuck open relief valve to the FPP safe shutdown analysis. No actual safety consequences occurred as a result of this condition. An hourly roving firewatch was posted for this area. A modification has been initiated to prevent inadvertent valve opening due to a fire in fire area 13N. No previous similar Licensee Event Reports have been identified.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 2 7 8	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	0 1 2	0 1	0 2	OF	0 3

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

Requirements for the Report

This report is required per 10 CFR 50.73(a)(2)(ii)(B) due to a condition which was outside the design basis of the plant for a postulated fire analyzed in the Fire Protection Program (FPP).

Unit Status at Time of Event

Unit 3 was in the RUN mode at 66 percent power.

Description of Event

On December 22, 1989, as a result of a review of the plant FPP analysis, it was determined that the potential existed for a loss of reactor coolant inventory beyond the makeup capability of the safe shutdown system relied upon in the FPP analysis for a fire in fire area 13N. A fire in this fire area is analyzed to potentially damage cables (EIIS:CBL) associated with electrically controlled valves (EIIS:V) which serve to isolate the low pressure portion of the Reactor Water Cleanup System (RWCU) (EIIS:CE) piping from the high pressure portion. This is postulated to result in electrical hot-shorts in the control cabling causing valves CV-12-55, MO-12-53 and either MO-12-56 or MO-12-57 to spuriously open, and in the loss of power feeds to primary containment isolation valves (EIIS:ISV), MO-12-15 and MO-12-18, allowing a loss of reactor coolant through the RWCU reject line. The makeup capability of the Reactor Core Isolation Cooling System (RCIC) (EIIS:BN) was previously analyzed to be adequate to compensate for the resulting loss of coolant inventory. However, applicability of the analysis to RWCU was determined to be in error since the makeup capability of RCIC would not be adequate for the postulated event. An hourly firewatch was immediately posted for fire area 13N.

Cause of the Event

The cause of this design deficiency was a misapplication of a previous analysis to the FPP Safe Shutdown Analysis. The loss of reactor coolant inventory through the RWCU line was thought to be bounded by a previous analysis of a loss of coolant inventory through one stuck open relief valve (EIIS:RV). Loss of reactor coolant inventory through one stuck open relief valve would exceed the makeup capability of RCIC only for the first twenty minutes of the event, without core uncover. Application of this analysis to the RWCU line is not valid since the loss of coolant would continue to exceed the makeup capability of RCIC.

Analysis of the Event

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

The control cabling for the RWCU reject line high/low pressure interface valves runs through fire area 13N. The loss of reactor coolant inventory through the RWCU reject line is only postulated to occur if a fire in this fire area results in hot-shorts in the control cabling of at least three RWCU reject line valves in series causing the valves to spuriously open, and in the loss of power feeds to the RWCU primary containment isolation valves. Maximum overpressurization of the low pressure piping would not be sufficient to cause a pipe or component rupture.

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

This event is considered to be extremely unlikely. Combustible loading in this area is low and primarily associated with electrical cabling. Ignition of electrical cabling is unlikely in the absence of a fire source external to the cabling since it is of the self-extinguishing type. Smoke generated by a fire in this area will activate smoke detectors (EIIS:IC) which cause an audible and visual alarm in the main control room. Upon receipt of this early warning the plant fire brigade would be dispatched to extinguish the fire.

The loss of coolant inventory for an equivalent postulated fire in Unit 2 (fire area 6N) would be isolated by closure of the RWCU inlet valve manually from the control room or automatically, by the Primary Containment Isolation System (EIIS:JM), upon reaching the zero inch reactor water level (174 inches above the top of active fuel). The power and control cables for this valve are not routed through this fire area.

Corrective Actions

An hourly roving firewatch was posted for fire area 13N providing enhancement to the early warning fire detection capability of the plant, and, in the event of a fire provides the capability for decisive action to mitigate the consequences of the fire.

A modification has been initiated on the electrical supply to MO-12-053 to prevent inadvertent opening due to a fire in fire area 13N. This modification is currently scheduled to be complete during the next refueling outage.

Previous Similar Events

No previous similar Licensee Event Reports have been identified.