



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

May 9, 1991

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 LER concerns the inoperability of the High Pressure Coolant Injection System due to high water level in the Turbine exhaust line.

Reference:	Docket No. 50-278
Report Number:	3-91-005
Revision Number:	00
Event Date:	04/10/91
Report Date:	05/09/91
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)(v).

Sincerely,

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

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FDR ADOCK 05000278
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bcc: R. A. Burricelli, Public Service Electric & Gas
Commitment Coordinator
Correspondence Control Program
T. M. Gerusky, Commonwealth of Pennsylvania
INPO Records Center
R. I. McLean, State of Maryland
C. A. McNeill, Jr. - S26-1, PECO President and COO
D. B. Miller, Jr. - SMO-1, Vice President - PBAPS
Nuclear Records - PBAPS
H. C. Schwemm, VP - Atlantic Electric
J. Urban, Delmarva Power

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 4		
TITLE (4) Inoperability of the High Pressure Coolant Injection System due to High Water Level in the Turbine Exhaust Line																
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (2)			OTHER FACILITIES INVOLVED (8)						
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME				DOCKET NUMBER (5)			
0 4	1 0	9 1	9 1	0 0 5	0 0 0 5	0 9	9 1						0 5 0 0 0			
OPERATING MODE (9) N			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)													
POWER LEVEL (10) 1 0 0			20.402(b)				20.405(a)				50.72(a)(2)(a)				73.71(b)	
			20.405(a)(1)(i)				50.73(a)(1)				<input checked="" type="checkbox"/> 50.73(a)(2)(i)				73.71(c)	
			20.405(a)(7)(i)(j)				50.73(a)(2)				50.73(a)(2)(a)				OTHER (Specify in Abstract below and in Text NRC Form 306A)	
			20.405(a)(11)(a)				50.73(a)(2)(i)				50.73(a)(2)(a)(A)					
			20.405(a)(1)(ii)				50.73(a)(2)(ii)				50.73(a)(2)(a)(B)					
			20.405(a)(1)(iv)				50.73(a)(2)(iv)				50.73(a)(2)(i)					
LICENSEE CONTACT FOR THIS LER (12)																
NAME A. A. Pulvio, Regulatory Engineer										TELEPHONE NUMBER						
										AREA CODE						
										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 NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC						
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (Specify in Abstract EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO				

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

On 4/10/91 at 2045 hours during the performance of a High Pressure Coolant Injection (HPCI) System Surveillance Test, HPCI was declared inoperable when water was found in the turbine exhaust line. The cause of the event has been attributed to the vacuum relief valves failure to prevent siphoning of Torus water into the turbine exhaust line. Loose locking nuts on the vacuum relief valves allowed the valve internals to disassemble and partially block vacuum relief flow. The maintenance procedure for the vacuum relief valves did not provide torquing requirements on the locking nut. The valves were repaired and the exhaust drain line steam trap was replaced. Maintenance procedures have been revised. No actual safety consequences occurred as a result of this event. There were no previous similar events identified.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Requirements for the Report

This report is being submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(v) describing conditions that alone could have prevented the fulfillment of a safety function.

Unit Conditions at Time of Discovery

Unit 3 was in the RUN mode at 100% of rated thermal reactor (EII:EA) power. There were no other systems, structures, or components that were inoperable which contributed to the event.

Description of Event

On 4/10/91 at 2045 hours during the performance of the High Pressure Coolant Injection (HPCI) System (EII:BJ) monthly Surveillance Test prior to turbine (EII:TRB) operation, HPCI was declared inoperable when water was found in the turbine exhaust line. The appropriate testing was initiated and the NRC was notified via ENS on 4/10/91 at 2045 hours. The turbine exhaust line was drained and the vacuum relief valves (EII:RV) were functionally tested on 4/11/91. The HPCI system was then tested satisfactorily per the monthly surveillance test and returned to an operable status on 4/11/91 at 0745 hours.

As a result of additional investigation, water was found again in the turbine exhaust line. HPCI was declared inoperable on 4/12/91 at 1030 hours and the appropriate testing was initiated. The NRC was notified via ENS at 4/12/91 at 1953 hours.

The vacuum relief valves were found to have loose locking nuts which allowed the valve internals to disassemble and partially block vacuum relief flow (See Attached Diagram). The turbine exhaust line steam trap was found partially clogged. The valves were reassembled and steam trap was replaced. The HPCI system was then tested and returned to an operable status on 4/16/91 at 1630 hours.

After reviewing the sequence of events, it was believed that improvements could be made in the area of operability determination and interfaces between Technical and Operations Departments. The items identified in this review are being addressed by Plant Staff.

Cause of the Event

The cause of the event has been attributed to the vacuum relief valve internals disassembling and partially blocking flow. This allowed torus water to be siphoned up into the exhaust line due to steam condensation following turbine operation. During the inspection of the valves, it was identified that the locking nuts were loose and the maintenance procedure did not provide the torquing requirements. Additionally, a contributing factor to the HPCI failure is that the turbine exhaust line steam trap was found partially clogged as a result of siphoning torus water into the turbine exhaust line draining system.

The Reactor Core Isolation Cooling (RCIC) System (EII:BN) also utilizes the same type vacuum relief valves.

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

Analysis of the Event

No actual safety consequences occurred as a result of this HPCI inoperability. If a design basis accident or transient would have occurred, and HPCI did not perform properly, the RCIC System and the Automatic Depressurization System (ADS) were operable to provide core cooling and, if required, reduce reactor (ET 3:RPV) pressure to allow the Low Pressure Coolant Injection (ET 5:BO) System to inject.

Corrective Actions

The Unit 3 HPCI vacuum relief valves were disassembled, inspected, and reassembled ensuring proper locking nut torque settings and the exhaust line steam trap was replaced.

The HPCI turbine exhaust line on both units have been verified drained after each system was operated. The Unit 2 RCIC vacuum relief valves were inspected during the last Refueling Outage and are considered acceptable since it was verified that the locking nuts were properly installed and tightened. The Unit 2 HPCI and Unit 3 RCIC vacuum relief valves are to be removed and inspected in the near future during system maintenance.

The maintenance procedures which inspect the HPCI and RCIC vacuum relief valves have been revised to ensure that the locking nuts are properly torqued and that the testing method verifies that the minimum lift setpoint is properly established. The HPCI and RCIC preventive maintenance programs for the vacuum relief valves have been revised to a more frequent basis of every other Refueling Outage. The HPCI and RCIC vacuum relief valve functional surveillance test will be revised to ensure that a more acceptable testing method is utilized. The HPCI and RCIC monthly surveillance test will be revised to ensure exhaust line draining after turbine operation.

Previous Similar Events

There were no previous similar events identified concerning HPCI inoperability due to water in the exhaust line.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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HPCI SIMPLIFIED PIPING DIAGRAM

