



PEACH BOTTOM--THE POWER OF EXCELLENCE

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION
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October 16, 1991

Docket No. 50-277

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

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

This LER concerns four Engineering Safety Feature actuations of the Control Room Emergency Ventilation System due to a wire connector short.

Reference:	Docket No. 50-277
Report Number:	2-91-032
Revision Number:	00
Event Date:	09/17/91
Report Date:	10/16/91
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)(iv).

Sincerely,

Ken Powers

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

JEdd
ITJ

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Peach Bottom Atomic Power Station - Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 2 7 7 1				PAGE (3) 1 OF 0 4					
TITLE (4) Engineered Safety Feature Actuations of the Control Room Emergency Ventilation due to a Wire Connector Short																			
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 NAME				DOCKET NUMBER (8)						
0 9	1 7	9 1	9 1	0 3 2	0 0	1 0	1 6	9 1					0 5 0 0 0 1						
OPERATING MODE (9) N			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 43.44 (Check one or more of the following) (11)																
POWER LEVEL (10) 1 0 0			20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(vi)			73.71(b)							
			20.405(a)(1)(i)			50.38(a)(1)			50.73(a)(2)(v)			73.71(c)							
			20.405(a)(1)(ii)			50.38(a)(2)			50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 365A)							
			20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(vii)(A)										
			20.405(a)(1)(iv)			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)(iii)			50.73(a)(2)(ix)										
LICENSEE CONTACT FOR THIS LER (12)																			
NAME Albert A. Fulvio, 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	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
SUPPLEMENTAL REPORT EXPECTED (14)																			
YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO			EXPECTED SUBMISSION DATE (15)			MONTH DAY YEAR			

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

On 9/17/91, 9/18/91, and twice on 9/24/91, the Control Room Ventilation system (CRVS) transferred to the Emergency Ventilation mode due to several instrument spikes in the "B" Main Control Room (MCR) radiation monitor. The operable MCR radiation monitor indicated normal background radiation levels. The cause of these events have been determined to be the result of spikes of the "B" MCR radiation monitor. An investigation has identified shorts at the detector cable connection. After each spike, the CRVS was returned to its normal configuration. The connections have been repaired and other similar connections will be inspected. The procedure used to install these connectors will be revised to provide guidance for the installation of these specific connectors. A modification has been initiated to replace the existing instrumentation. There were no adverse safety consequences as a result of this event. There were seven previous similar LERs identified.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 7 7 9 1 — 0 3 2 — 0 0		LER NUMBER (6)			PAGE (3)		
			YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
						0 2	OF	0 4

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

Requirement for the Report

This report is submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(iv) which requires reporting any unplanned actuations of an Engineered Safety Feature.

Unit Status at Time of Events

Unit 2 was in the RUN mode at 100% of thermal reactor (EII:EA) power. Unit 3 was in the REFUEL mode. There were no structures, systems or components out of service which contributed to this event.

Description of the Events

On 9/17/91 at 1550 hours, the Control Room Ventilation System (CRVS) transferred to the Emergency Ventilation (CREV) mode due to an instrument spike in the "B" Main Control Room (MCR) radiation monitor (RIS-0760B) (EII:MON). The operable MCR radiation monitor (RIS-0760A) indicated normal background radiation levels. The "B" radiation monitor indication immediately returned to normal and the CRVS was restored to its normal configuration at 1603 hours. The "B" MCR radiation monitor was considered operable since it was believed to be a spurious trip only. The NRC was notified via ENS at 1635 hours.

On 9/18/91 at 1421 hours, the CRVS transferred to the CREV mode due to an instrument spike in RIS-0760B. The operable MCR radiation monitor indicated normal background radiation levels. The "B" radiation monitor indication immediately returned to normal and the CRVS was restored to its normal configuration at 1445 hours. The NRC was notified via ENS at 1455 hours. An investigation on 9/19/91 revealed that the low voltage power supply had a failed capacitor so the "B" MCR radiation monitor control logic was placed in the fail safe condition and the appropriate Limiting Condition for Operation (LCO) was entered on 9/19/91 at 0530 hours. Therefore, the capacitor on the low voltage power supply was replaced. It was believed that the problem was resolved so the "B" MCR radiation monitor was returned to service on 9/23/91 at 0900 hours and the system was considered operable.

On 9/24/91 at 1420 hours, the CRVS transferred to the CREV mode due to an instrument spike in RIS-0760B. The operable MCR radiation monitor indicated normal background radiation levels. The "B" MCR radiation monitor's output signal immediately returned to normal and the CRVS was restored to its normal configuration at 1440 hours. The "B" MCR radiation monitor was considered inoperable and the LCO was entered at 1440 hours. The NRC was notified via ENS at 1515 hours. After this event occurred, preparations were being made to troubleshoot the instrument loop.

At 1538 hours, the CRVS transferred to the CREV mode due to an instrument spike in RIS-0760B. The operable MCR radiation monitor indicated normal background radiation levels and the NRC was notified via ENS at 1610 hours. The "B" MCR radiation monitor indication immediately returned to normal. Additionally, the "B" MCR radiation monitor control logic was placed in the fail safe condition, RIS-0760B was removed from service, and the CRVS was restored to its normal configuration at 1810 hours. Several shorts were identified on the "B" MCR radiation monitor cable connection at the detector. Additional investigation on 9/28/91 revealed that the low voltage power supply had a failed transistor. The low voltage power supply was repaired and

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/96

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

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

a new cable connector was installed. The "B" MCR radiation monitor was returned to service and the system was considered to be operable on 10/01/91 at 1155 hours.

Cause of the Events

The cause of these events have been determined to be the result of spikes of the "B" MCR radiation monitor. An investigation has indicated that the radiation monitor spikes were caused by shorts at the detector cable connections. The root cause of these events has been determined to be that the procedure used to install these connectors does not address cables which have both coaxial and regular wires. It only addresses connections of either coaxial or regular wires. Therefore, the procedure was incomplete since this situation was not adequately covered.

Analysis of the Events

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

The CRVS serves the PBAPS control room which is common to both units. The system's safety design basis is to maintain the control room habitable under design basis accident conditions including loss of off-site power. Fresh air is filtered when necessary to prevent contamination of the control room.

Two radiation monitors ("A" & "B") continuously sample air from the CRVS supply Duct (EIIS:DUCT). With a high radiation signal present from either radiation monitor, or coincident downscale or low flow signals from both channels, the CRVS realigns to the Emergency Mode of Operation and supplies filtered fresh air to the control room. Upon actuation, the normal fresh air supply fans (EIIS:FAN) trip and isolate. The Emergency fans then start supplying fresh air to the control room through the Emergency Filters (EIIS:FLT).

The "A" monitor indicated normal background radiation levels during the events. The realignment of the CRVS to the Emergency Mode of operation initiated as designed. This realignment was conservative and had no adverse effect on safety. The effect of this event under other plant conditions would be no more severe.

Corrective Actions

After each spike, the instrument indication returned to normal and the operable MCR radiation monitor indicated normal background radiation levels. Additionally, the CRVS was returned to its normal configuration.

The appropriate Instrument and Control procedures will be revised as necessary to provide additional guidance for the installation of these specific connectors.

The connections and power supply on the "B" radiation monitor have been inspected and repaired. The other radiation monitors will be inspected and appropriate corrective actions will be taken as necessary.

A modification for the replacement of the ventilation exhaust radiation monitors has been initiated to replace the existing MCR instrumentation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 7 7 9 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
			0 3 2	0 0	0 4	OF	0 4

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

Previous Similar Events

Several previous LER's were identified involving CREV actuations. LER 2-89-26, 2-90-10, 2-90-15, 2-90-16, 2-90-18, and 2-91-23 all involved spurious actuation signals from the radiation monitors.

The corrective actions implemented as a result of the previous events included the cleaning of oxidized cable connections and switches in conjunction with the tightening of terminal strips. Since the cause of this event has been determined to be shorts in the signal cable at the detector connection, the previous corrective actions could not have been expected to prevent these events.