CCN 90-14214

PEACH BOTTOM—THE POWER OF EXCELLENCE

PHILADELPHIA ELECTRIC COMPANY
PEACH BOTTOM ATOMIC POWER STATION
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November 8, 1990

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 control room emergency ventilation system actuations due to a faulty ribbon cable, a dirty connector, and age of the electronic components in the radiation monitor.

Reference:	Docket No. 50-277
Report Number:	2-90-019
Revision Number:	01
Event Date:	08/17/90
Report Date:	11/08/90
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)(iv).

Sincerely,

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

IE22
1/1

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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4) Control Room Emergency Ventilation System Actuations Due to a Faulty Ribbon Cable, a Dirty Connector, and Age of the Electronic Components in the Radiation Monitor

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)
											0 5 0 0 0
0 8	1 7	9 0	9 0	—	0 1 9	— 0 1	1 1	0 8	9 0		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (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)	1 0 0	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
A. A. Fulvio, Regulatory Engineer	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On 8/17/90 a Control Room Emergency Ventilation (CREV) actuation occurred at 2130. Another CREV actuation occurred on 8/20/90 at 1135 hours. Initiation of CREV is an Engineered Safety Feature actuation. The actuations resulted from a high radiation signal from the "B" Control Room Ventilation System (CRVS) radiation monitor. The CRVS serves the PBAPS Control Room which is common to both units. After verifying that the signals were not valid, the CRVS was restored to the normal standby alignment. The cause of the spurious high radiation signals is believed to be a faulty ribbon cable, dirt and dust which accumulated on an internal bulkhead connector, and the age of the Radiation Monitor. The cable was replaced, the connections were cleaned, and a preventive maintenance task has been established for future inspections of Radiation Monitor internals. There were six previous similar events identified. There were no adverse safety consequences as a result of this event.

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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 actuation of an Engineered Safety Feature.

Unit Status at Time of Discovery

Unit 2 was in the Run mode at 100% Licensed Thermal Power in both cases. Unit 3 was in the Run mode at 70% Licensed Thermal Power on 8/17/90 and 98% on 8/20/90. There were no structures, systems or components out of service which contributed to these events.

Description of the Events

On 8/17/90 at 2130 hours the Control Room Ventilation System (CRVS) transferred to the Emergency Ventilation mode due to a high radiation signal from the "B" radiation monitor (RIS-0760B) (EIIS:MON). Another CREV actuation occurred on 8/20/90 at 1135 hours. After each actuation the high radiation signal was determined to be spurious and the CRVS was restored to its normal standby alignment. The radiation monitor is manufactured by Nuclear Research Corporation, model number DRM-100S.

Cause of the Events

The cause of these events is believed to be a faulty ribbon cable, dirt and dust which covered an internal bulkhead connector, and the age of the electronic components in the monitor circuitry causing increased sensitivity to stray noise signals.

Analysis of the Events

No actual safety consequences occurred as a result of these events.

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, 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).

In this event only the "B" radiation monitor indicated a high radiation condition and the signal only existed for a short duration. The "A" monitor indicated normal background radiation levels. No other plant condition indicated the potential for the indicated high radiation condition. 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 these events under other plant conditions would be no more severe.

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

Corrective Actions

After each event the actuation was determined to have been spurious. The system was restored to its normal standby alignment.

The event on 8/17/90 and on 8/20/90 was the fifth and sixth actuation respectively since 7/7/90. The investigation, which was promptly initiated on 7/7/90, continued to expand with each event. The spurious nature of the false signal inhibited the investigation. After elimination of external influences on the circuit the investigation proceeded to the internals of the Radiation Monitor. This then lead to finding the most probable cause.

The faulty ribbon cable was replaced. The bulkhead connection was cleaned. A preventive maintenance task has been established to inspect and clean the appropriate internal components of the radiation monitors. A modification for a replacement Radiation monitor has been initiated.

Previous Similar Events

Six previous LER's were identified involving CREV actuations. LER 2-89-21, 2-89-26, 2-90-10, 2-90-15, 2-90-16, and 2-90-18 all involved spurious actuation signals from the radiation monitors. The corrective actions for these events did not include an inspection or cleaning of components or identification of the faulty ribbon cable within the Radiation Monitor itself.