CCN-90-14129

PHILADELPHIA ELECTRIC COMPANY
PEACH BOTTOM ATOMIC POWER STATION
R. D. 1, Box 208
Delta, Pennsylvania 17314
(717) 456-7014

PEACH BOTTOM—THE POWER OF EXCELLENCE

D. B. Miller, Jr.
Vice President

June 25, 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 the operability of the Standby Gas Treatment System as a result of circuitry containing relays which were not environmentally qualified. This revision supplements the root cause of this event and provides planned corrective actions.

Reference:	Docket No. 50-277
Report Number:	2-89-028
Revision Number:	01
Event Date:	11/08/89
Report Date:	6/25/90
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)(v).

Sincerely,

Vice President

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

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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)
Peach Bottom Atomic Power Station - Unit 2	0 5 0 0 0 2 7 7	1 OF 0 3

TITLE (4)
Standby Gas Treatment System Heater Control Relays Installed Without Environmental Qualification Due To Unknown Cause

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 1	0 8	8 9	8 9	—	0 2 8	— 0 1	0 6	2 5	9 0	PBAPS - Unit 3	0 5 0 0 0 2 7 8
											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)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.71(c)
1 0 0		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
	AREA CODE
A. A. Fulvio, Regulatory Engineer	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 November 8, 1989, following a review of safety related relay applications it was determined that the Standby Gas Treatment System (SBGT) heater control relays were not qualified for the analyzed post Loss of Coolant Accident (LOCA) radiation environment. At 1335 hours, the SBGT was declared inoperable and a Unit 2 plant shutdown was initiated in accordance with Technical Specifications. By 0100 hours, on November 9, temporary radiation shielding was installed around the relays, the SBGT declared operable and Unit 2 restored to full power. The relays were subsequently relocated to an area in which the calculated Post LOCA Radiation Levels do not exceed their 2.0E5 rad rating. The root cause of this event was a lack of procedural guidance to control the Environmental Qualification aspects of the modification design process (CIRCA 1980). An assessment of the Peach Bottom EQ Program will be performed to ensure that required components have been included. No previous similar LERs were identified.

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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)(v) due to a condition which could have prevented fulfillment of the safety function of the Standby Gas Treatment System (EIIS:BD) (SBGT).

Unit Status at Time of Event

Unit 2 was in the Run Mode at 100 percent power. Unit 3 was in the Refuel Mode.

Description of Event

On November 8, 1989, following a review of safety related relay applications, a procurement engineer (contract non-licensed) determined that both the "A" and "B" train SBGT System heater (EIIS:EHTR) control relays (EIIS:RLY) had been omitted from the Environmental Qualification Report. Evaluation by the Equipment Qualification (EQ) Branch determined that time delay relays 62-5944 and 62-6023 (Agastat model ETR) were not qualified for the analyzed post Loss of Coolant Accident (LOCA) high radiation environment in the SBGT fan and filter room. The relays are in the heater actuation circuit to provide a time delay to allow SBGT system flow to be established. At 1335 hours, both trains of the SBGT System were declared inoperable and a Unit 2 plant shutdown initiated in accordance with Technical Specification 3.7.B.4. At 2105 hours the "B" train SBGT heater relay was provided with temporary shielding and declared operable and at 2150 hours Unit 2 was restored to full power. On November 9, at 0100 hours the "A" train SBGT heater relay was provided with temporary shielding and declared operable.

Cause of the Event

The SBGT heater actuation time delay relays were installed in November 1980 as a modification to the heater control system (Modification 648). At the time of this modification the PBAPS equipment environmental qualification program controls and criteria were under the early stages of development.

In June 1985 the environmental qualification report for electrical equipment was completed. During implementation of the equipment environmental qualification program in accordance with IE Bulletin 79-01B, "Environmental Qualification of Class 1E Equipment", and 10 CFR50.49, these relays were excluded from the qualification list of equipment important to safety which has the potential to be subject to a harsh environment.

The root cause of this exclusion has been determined to have been a lack of procedural guidance to control Environmental Qualification aspects of the modification process during the time modification 648 was being implemented. At the time this modification was being implemented, Philadelphia Electric Company was in the process of developing its response to Bulletin 79-01B. To accomplish this, an Environmental Qualification task force was established by the Nuclear Engineering Department (NED). The task force was separated from the main body of NED to allow full dedication to Bulletin 79-01B. Because there was no procedural requirement to notify the EQ task force of modifications being installed, the task force was not made aware of modification 648 and newly installed relays 62-5944 and 62-6023.

*U.S. GPO: 1988-520-589/00070

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

Consequently, an evaluation of the EQ requirements for these relays was not performed thus leading to their exclusion from the list of environmentally qualified electrical equipment.

A procedural requirement to perform an Environmental Qualification review as part of the modification design process was implemented approximately one year later (mid 1981).

Analysis of the Event

No safety consequences occurred as a result of this event.

The heater control relays used in the SBGT fan and filter room were purchased as nuclear safety related equipment and could withstand the analyzed post LOCA heat and humidity conditions. They were also qualified to withstand an integrated dose of 2.0 E5 rads. However, the worst case analyzed radiation exposure to the relays is approximately 3.7 E6 rads.

SBGT is comprised of two full flow trains which may be used by either plant. The SBGT heaters reduce humidity of air entering the filters (EIIS:FLT) to less than 70 percent. This protects the filters from moisture which would reduce their efficiency. Reduced efficiency of the filters due to failure of the heater control relays during a design basis LOCA in either unit could have resulted in offsite doses in excess of that analyzed.

Corrective Actions

A Unit 2 plant shutdown was initiated until temporary radiation shielding was in place.

The relays were relocated on 5/1/90 to an area in which the calculated post LOCA radiation levels do not exceed their 2.0E5 rad rating.

Philadelphia Electric Company will perform an assessment of the Peach Bottom EQ Program to provide additional assurance that required items are included.

Previous Similar Events

No previous similar Licensee Event Reports were identified.

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