

CCN 91-14201



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

November 29, 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 an Engineered Safety Feature actuation that occurred due to degraded diodes in the '2B' Reactor Protection System Motor Generator.

Reference:	Docket No. 50-277
Report Number:	2-91-037
Revision Number:	00
Event Date:	11/04/91
Report Date:	11/29/91
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

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN FOR RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Peach Bottom Atomic Power Station - Unit 2	DOCKET NUMBER (2) 05000277	PAGE (3) 1 OF 3
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TITLE (4) '2B' Reactor Protection System Motor Generator Set Trip on Undervoltage due to Degraded Diodes

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)
11	04	91	91	037	001	11	29	91			05000

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50.71 (Check one or more of the following) (11)									
POWER LEVEL (10) 0.99	20.402(b)	20.406(c)	X	50.73(a)(2)(iv)	73.71(b)					
	20.406(a)(1)(ii)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)					
	20.406(a)(1)(i)	50.36(c)(2)		50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)					
	20.406(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(vii)(A)						
	20.406(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(vii)(B)						

LICENSEE CONTACT FOR THIS LER (12)

NAME Albert A. Fulvio, Regulatory Engineer	TELEPHONE NUMBER
	AREA CODE: 717 4561-170114

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 11/4/91 at 1535 hours, a Unit 2 "B" channel Reactor Protection System (RPS) half scram occurred when the '2B' RPS Motor Generator (M/G) set output breaker tripped. The tripped breaker caused a Primary Containment Isolation System half Group III isolation which included a Standby Gas Treatment System initiation. The cause of the event has been determined to be an undervoltage condition on the output of the '2B' RPS M/G set due to degraded diodes. Following the event, the '2B' RPS was aligned to its alternate feed which allowed the half scram and isolations to be reset. Subsequently, the affected systems were restored to normal. Several diodes were replaced, a Temporary Plant Alteration was installed to monitor the 2B M/G Set. The RPS was restored to its normal power supply. No actual safety consequences occurred as a result of these events. No previous similar LERs have been identified.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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 7 - 0 0 0 2 OF 0 3	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REV. CON. NUMBER			

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

Requirements for the Report

This report is submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(iv) due to unplanned Engineered Safety Feature Actuations.

Unit Conditions at Time of Event

Unit 2 was in the RUN mode at 99% of rated thermal reactor (EIIS:EA) power. There were no systems, structures, or components that were inoperable that contributed to the event.

Description of the Event

On 11/4/91 at 1535 hours, a Unit 2 'B' channel Reactor Protection System (RPS) (EIIS:JC) half scram occurred when the '2B' RPS Motor Generator (M/G) output breaker (EIIS:BKR) tripped as a result of an undervoltage condition on the output of the '2B' RPS M/G set. The tripped breaker caused a Primary Containment Isolation System (PCIS)(EIIS:JM) half Group III isolation which started Standby Gas Treatment (EIIS:BH) and tripped the ventilation systems. The '2B' RPS bus was then aligned to its alternate feed which allowed the half scram and isolations to be reset. Subsequently, the affected systems were restored to normal. The NRC was notified of the event via ENS at 1650 hours.

Cause of the Event

The cause of the event has been determined to be an undervoltage condition on the "B" RPS bus.

An investigation identified that two M/G set diodes were degraded. Additionally, excessive dirt was found in the area of the generator field and exciter.

The existing PM program did not address diode checks and generator area cleanliness.

Analysis of the Event

No actual safety consequences occurred as a result of these events. Isolations and actuations functioned as designed. The undervoltage trip protects the RPS components from damage. If a half scram signal had been present on the "A" channel RPS during this event, a full scram would have occurred.

Corrective Actions

Following the event, the '2B' RPS bus was aligned to its alternate feed which allowed the half scram and isolations to be reset. Subsequently, the affected

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TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-839), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (if more space is required, use additional NRC Form 386A's) (17)

systems were restored to normal. Six diodes were replaced and the M/G set exciter and generator field were vacuumed clean on 11/8/91.

A recorder was installed under a Temporary Plant Alteration to provide a method to monitor the '2B' M/G set while in-service. The RPS bus was returned to its normal power supply on 11/9/91.

The '2B' M/G set will be monitored in an effort to identify any other operating difficulties that may be encountered.

The existing preventative maintenance tasks on the RPS M/G sets will be revised to include generator area cleaning and diode checks.

Additionally, a review of the Nuclear Plant Reliability Data System and work orders was performed concerning failed diodes and no significant problems were identified.

The other RPS M/G sets on both units will be taken out of service to support an inspection of these diodes and to perform generator area cleaning.

Previous Similar Events

No previous similar LERs have been identified involving RPS output breaker trips due to degraded diodes. However, there were two previous LERs (2-91-029 and 2-91-031) involving 2B M/G set output breaker trips. The first event involved a failed rheostat while the second event involved a failed voltage regulator. Since the corrective actions taken as a result of these events involved rheostat and voltage regulator replacement, they would not have been expected to prevent this event.