CQN 92-14077

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION

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KEN POWERS
PLANT MANAGER

June 17, 1992

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 a reactor scram due to an unexpected Main Turbine Combined Intermediate Valve closure.

Reference:	Docket No. 50-277
Report Number:	2-92-009
Revision Number:	00
Event Date:	05/20/92
Report Date:	06/17/92
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

IE22

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 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.

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) Reactor Scram due to an Unexpected Main Turbine Combined Intermediate Valve Closure

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 5	2 0	9 2	9 2	- 0 0 9	- 0 0	0 6	1 7	9 2		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)	0 9 9	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
	AREA CODE
Albert A. Pulvio, Regulatory Supervisor	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 5/20/92 at 2115 hours, during the performance of a Routine Test (RT)-O-001-408-2 "Cycling of Combined Intermediate Valves", a reactor scram occurred when two Main Turbine Combined Intermediate Valves (CIV) closed simultaneously causing a power load unbalance trip signal. The power load unbalance circuitry caused a Main Turbine Control Valve fast closure which resulted in a reactor scram. The cause of the event has been determined to be an unexpected closure of the #2 Intercept Valve (IV) during testing of the #3 CIV. The investigation was unable to recreate the inadvertent closure of the #2 IV. However, a faulty test solenoid on the #2 IV was discovered which may have been a contributing factor to this event. Following the event, the scram and isolations were reset and the affected systems were restored to normal. Two CIV test logic relays and a circuit board in the test logic were replaced as a preventive measure. The faulty test solenoid will be sent offsite for failure analysis and corrective actions will be reviewed and implemented as appropriate. No actual safety consequences occurred as a result of this event. No previous similar events have been identified.

Requirements for the Report

This report is submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(iv) because of 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:RPV) power. There were no systems, structures, or components that were inoperable that contributed to the event.

Description of Event

On 5/20/92 at 2115 hours, during the performance of a Routine Test (RT)-0-001-408-2 "Cycling of Combined Intermediate Valves", a reactor scram occurred when two Main Turbine (EIIS:TRB) Combined Intermediate Valves (CIV) (EIIS:V) closed simultaneously causing a power load unbalance trip signal. The power load unbalance circuitry compares the Main Generator (EIIS:GEN) output power to Main Turbine steam flow and closes the Main Turbine Control Valves if a mismatch of greater than 40% occurs. This trip signal caused a Main Turbine Control Valve fast closure which result d in a reactor scram. A Primary Containment Isolation System (PCIS)(EIIS:JM) Group 1 /III isolation occurred as expected due to the reactor water level decrease after the scram. In addition, two Main Steam Relief Valves momentarily opened due to high reactor pressure following the Turbine trip. The high reactor pressure also caused the Alternate Rod Insertion system to actuate but the Control Rod Drives (EIIS:AA) were already inserted. The scram actuation and PCIS Group II/III isolations were reset by 2140 hours. The NRC was notified of the event via ENS at 2236 hours.

Cause of Event

The cause of the event has been determined to be an unexpected closure of the #2 Intercept Valve (IV) during testing of the #3 CIV. The #3 CIV logic interacts with the #2 IV closure function. It is believed that either a faulty test relay (EIIS:RLY) or a faulty circuit board (EIIS:ECBD) caused a voltage transient or momentary energization of the #2 IV test solenoid (EIIS:SOL). A faulty test solenoid on the #2 IV was discovered which may have been a contributing factor to this event. The test solenoid is used to drain the pressure from beneath the #2 IV hydraulic piston which slow closes the valve for testing. The faulty test solenoid was found to stick in the drain position which could combined with another failure cause an unexpected closure of the #2 IV. An extensive investigation was performed which included several attempts to recreate the event. The investigation was unable to recreate the inadvertent closure of the #2 IV.

Analysis of Event

No actual safety consequences occurred as a result of this event. All isolations and initiations functioned as designed. Closure of the second Main Turbine CIV caused a Main Turbine Control Valve fast closure which would result in significant addition of positive reactivity and the scram counteracts this addition.

Corrective Action

Following the event, the scram and isolations were reset and the affected systems were restored to normal.

The faulty test solenoid on the #2 IV was replaced and tested satisfactorily. Since the exact cause of the #2 IV inadvertent closure has not been determined, two additional CIV test logic relays and a circuit board in the test logic were replaced as a preventive measure.

The faulty test solenoid will be sent offsite for failure analysis. The results of this analysis will be reviewed by the station and corrective actions will be implemented as appropriate. Any significant additional causes and associated corrective actions will be submitted in a revision to this report as necessary.

Previous Similar Events

No previous similar events have been identified which involved an unplanned CIV closure due to a faulty test solenoid.