



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

September 19, 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 HPCI inoperability due to low 2B battery voltage during maintenance caused by personnel error.

Reference: Docket No. 50-277
Report Number: 2-90-020
Revision Number: 00
Event Date: 08/21/90
Report Date: 09/19/90
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,

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

9009270225 900919
PDR ADOCK 05000277
S PDC

IE 22
11

bcc: ANI Library
R. A. Burrelli, Public Service Electric & Gas
Commitment Coordinator
Correspondence Control Desk
T. M. Gerusky, Commonwealth of Pennsylvania
INPO Records Center
R. I. McLean, State of Maryland
C. A. McNeill, Jr. - S26-1, PECO President and COO
D. B. Miller, Jr. - SMO-1, Vice President - PBAPS
Nuclear Records - PBAPS
H. C. Schwemm, VP - Atlantic Electric
J. Urban, Delmarva Power

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Peach Bottom Atomic Power Station - Unit 2
DOCKET NUMBER (2): 0 5 0 0 0 0 2 7 7 1 OF 0 4

TITLE (4): HPCI Inoperable Due To Low 2B Battery Voltage During Maintenance Caused By Personnel Error

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)
08	21	90	90	020	00	09	19	90			0 5 0 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)

OPERATING MODE (8): N	20.402(b)	20.406(e)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10): 1 0 0	20.405(a)(1)(ii)	50.36(c)(1)	X 50.73(a)(2)(iv)	73.71(e)
	20.405(a)(1)(iii)	50.36(c)(2)	50.73(a)(2)(v)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iv)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.405(a)(1)(v)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.405(a)(1)(vi)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: A. A. Pulvio, Regulatory Engineer
TELEPHONE NUMBER: 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

SUPPLEMENTAL REPORT EXPECTED (14): YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15): MONTH: , DAY: , YEAR:

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen 1/4 page space typ. ten lines) (16)

On 8/21/90 at 0920 hours the 2D Battery Charger was made inoperable for undervoltage Alarm Relay Calibration. Although the Battery Charger was correctly declared inoperable at this time, the Battery and the associated loads were not. The High Pressure Coolant Injection (HPCI) system should also have been declared inoperable. The 2D Battery Charger was declared operable at 1055 hours. At 1100 hours the 2B Battery Charger was declared inoperable in order to perform the same calibration. The 2B Battery Charger was declared operable at 1420 hours. At 1445 hours it was realized that HPCI should have been declared inoperable per a Technical Specification Plant Operations Review Committee (PORC) Position on battery operability. Although the work on the batteries was preplanned, the fact that HPCI would also be inoperable was not recognized, therefore it was reported.

The cause of this event was personnel error by shift supervision. No actual safety consequences occurred as a result of this event. Shift Supervision was counseled on the event. No previous similar LERs have been 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 0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		— 0 2 0	— 0 1 0	0 2	OF	0 4

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

Requirements for the Report

This report is submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(v) describing a condition that alone could have prevented the fulfillment of a safety function. The event involves an unplanned loss of a single train safety system.

Unit Conditions at Time of Discovery

Unit 2 was in the Run mode at 100 percent of rated thermal reactor (EIIS:RPV) power.

Description of the Event

On 8/21/90 at 0920 hours the 2D Battery Charger (EIIS:BYC) was made inoperable for undervoltage Alarm Relay Calibration. It was known that battery (EIIS:BTRY) voltages would be intentionally lowered momentarily below 123.5 Vdc to adjust the float voltage during the calibration. This results in the battery and all of its loads being considered inoperable per Technical Specification (T.S.) Plant Operations Review Committee (PORC) Position 35. The T.S. PORC Position indicates the results of an Engineering Analysis which recognized a more restrictive requirement for battery terminal voltage than specified in T.S. The PORC Position also states that the battery charger must be operable or the associated battery declared inoperable. The Battery Charger was declared inoperable and a three day Limiting Condition for Operation (LCO) was entered per T.S. 3.9.A. Although the Battery Charger was correctly declared inoperable at this time, the batteries and their associated loads were not. The High Pressure Coolant Injection (HPCI) (EIIS:BJ) system should also have been declared inoperable because several HPCI components receive power from the 2B Battery. At 1055 hours the 2D Battery Charger was returned to service and declared operable.

At 1100 hours the 2B Battery Charger was made inoperable in order to perform the same calibrations. The 2B charger supports the same 250 Vdc battery as the 2D Battery Charger. At 1400 hours, during the calibration, the 2B Battery Charger Feeder Breaker (EIIS:BKR) tripped. This occurred when AC power was restored to the 2B charger. An Operator (non-licensed, Utility) was dispatched to reset the breaker and PORC Position 35 was reviewed by Shift Supervision (Licensed, Utility). While reviewing the PORC Position the work on the charger was completed, the breaker was reset, and the Battery Charger was declared operable at 1420 hours. At 1445 hours it was realized that the batteries, and thus HPCI, should have been declared inoperable per the PORC Position. It was decided that it was unnecessary to enter the T. S. action statements at this time since the battery chargers had already been restored to an operable status.

The NRC was notified at 1727 hours because HPCI was inoperable while the battery chargers were inoperable. Although the work was preplanned, the fact that HPCI would also be inoperable was not recognized, therefore it was reported.

Cause of the Event

The cause of this event was personnel error in that Shift Supervision overlooked the statement in the PORC Position requiring the batteries and the associated loads be declared inoperable. The shift recognized the need to maintain battery voltage above

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	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 0	- 0 2 0	- 0 0	0 3	OF 0 4

TEXT (if more space is required, use additional NRC Form 306A's) (1,1)

123.5 volts per PORC Position 35. Even though the calibration would only take the voltage to less than 123.5 volts momentarily, the decision was made to declare the Battery Charger inoperable during the entire time the chargers were being worked.

Analysis of Event

No actual safety consequences occurred as a result of this event. The safety objective of the station batteries is to supply all normal and emergency power for the 125 Vdc and 250 Vdc loads.

The 125/250 Vdc power supplies are designed so that no single component failure prevents power from being supplied to a sufficient number of vital loads for safe shutdown.

The "2B" 125 Vdc battery constitutes one half of the Division II 250 Vdc battery system. Without the Division II 250 Vdc battery, the HPCI system would not be available during a Loss of Coolant Accident (LOCA). If the HPCI system is not available, the Automatic Depressurization System (ADS) and low pressure Emergency Core Cooling Systems (ECCS) provide sufficient core cooling in the event of a LOCA.

The "2B" 125 Vdc battery provides power to the "B" CS and "B" RHR logic circuits. Each Residual Heat Removal (RHR) logic initiates both RHR Low Pressure Coolant Injection (LPCI) subsystems. Thus both RHR LPCI subsystems were still operable. The "B" CS logic circuit initiates the CS "B" subsystem and provides a LOCA start signal to the E2 and E4 Emergency Diesel Generators (EDG). Without the "B" CS logic circuit the "B" CS subsystem would not automatically initiate during a LOCA. Sufficient low pressure core cooling is provided by a minimum of 2 CS pumps and 2 RHR pumps (in one loop) or 1 CS pump and 2 RHR pumps (one in each loop). During this event the "A" CS subsystem remained operable and both RHR LPCI subsystems were operable. With these 2 CS pumps and 4 RHR pumps adequate core cooling was available. Additionally, the Reactor Core Isolation Cooling (RCIC) (E1IS:BN) System was available to provide high pressure cooling. The RCIC System flow capacity is less than HPCI.

Without the "2B" 125 Vdc battery the "B" CS logic would not have been available to provide LOCA start signals to the E2 and E4 EDGs. These EDGs would still have started from a low voltage signal if off-site power had been lost. The low voltage start signal to the EDGs does not bypass the EDG protective trip signal as does the LOCA start signal which would potentially result in a lower EDG reliability during a LOCA event. Normal off-site power was available throughout the duration of this event. With off-site power available the EDGs are not needed during a LOCA.

The above analysis is based on conservatively assuming absolute loss of the "2B" 125 Vdc battery. The actual plant condition was not this severe. Although the "2B" charger was not available, the battery alone would have provided some power to the supplied components and some of the supplied components would likely have performed their intended function if a design basis event had occurred.

The occurrence of this event with concurrent loss of additional independent systems or components could be more severe only as a result of the loss of the independent safety systems or components and is outside the design basis assumptions. Based on the short duration of this event and the installed redundancy and independence of

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 0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0	2	0	0	0 4 OF 0 4

TEXT (If more space is required, use additional NRC Form 388A's) (17)

remaining systems and components, this event had no effect on the capability of the plant to mitigate design basis events.

Corrective Actions

Following the event, management (Licensed, Utility) reviewed the event with Shift Supervision. The Supervisor was fully aware of his mistake and acknowledged the severity of the event.

Previous Similar Events

No previous similar LERs caused by personnel error involving PORC Position #35 have been identified.