

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION

R. D. 1, Box 208

DELTA, PA 17314

(717) 456-7014



KEN POWERS
PLANT MANAGER

April 27, 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 plant shutdown required by Technical Specifications due to inoperable Reactor Water Level Instrumentation.

Reference: Docket No. 50-277
Report Number: 2-92-005
Revision Number: 00
Event Date: 03/25/92
Report Date: 04/27/92
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)(i)(A) and 10 CFR 50.73(a)(2)(i)(B).

Sincerely,

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

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LICENSEE EVENT REPORT (LER)

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 (F-50), 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 0 | 2 7 | 7 1 OF 0 5

PAGE (3): 1 OF 0 5

TITLE (4): Plant Shutdown Required by Technical Specifications due to Inoperable Reactor Water Level Instrumentation

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
03	26	92	92	005	00	04	27	92	
								DOCKET NUMBER(S):	
								0 5 0 0 0 0	
								0 5 0 0 0 0	

OPERATING MODE (9): N

POWER LEVEL (10): 1 0 | 0

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

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(ii)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(iv)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
20.405(a)(1)(v)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
20.405(a)(1)(vi)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: Albert A. Fulvio, Regulatory Engineer

TELEPHONE NUMBER: 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)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On 3/26/92 at 2345, all Unit 2 Reactor Water Level Instrumentation associated with the 2B Reactor Water Level reference leg condensing chamber was declared inoperable. Review by technical personnel concluded that two small instrument fitting leaks outside containment on the 2B reference leg had caused the instruments to indicate higher than actual and that the instrument would not trip within their TS values. A plant shutdown was immediately initiated to comply with Technical Specification 3.0.C. The cause of this event was a loss of inventory in the 2B condensing chamber reference leg. Following the shutdown, inspections verified no leakage in the Drywell and that the insulation was properly installed. A Temporary Plant Alteration has been installed which will monitor the Reactor Water Level condensing chamber temperatures. The design and installed configuration will be evaluated. No actual safety consequences occurred as a result of this event. There was one previous similar LER identified.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATIONESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS
INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD
COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS
AND REPORTS MANAGEMENT BRANCH (F-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) Brazos Atomic Power Station	DOCKET NUMBER (2) 0 5 0 0 0 2 7 7	LER NUMBER (6)			PAGE (3)	
		YEAR 9 2	SEQUENTIAL NUMBER 0 0 5	REVISION NUMBER 0 0	0 2	OF 0 5

TEXT (If more space is required, use additional NRC Form 308A's) (17)

Requirements for the Report

is submitted to satisfy the requirements of 10 CFR
(i)(A) as a result of the completion of a shutdown required by the
specification (TS) and 50.73(a)(2)(i)(B) as a result of a condition
by the TS.

Unit Conditions at Time of Discovery

Unit was in the RUN mode at 100% of rated thermal reactor (EIIIS:RPV) power.
There were no systems, structures, or components that were inoperable that
contributed to this event.

Description of Event

On 3/26/92 at 2119 hours, it was noticed that the level indications from the
2B condensing chamber reference leg had drifted approximately five inches
higher than indicated on the 2A reference leg. Steady state level indications
from the 2A Reactor Water Level condensing chamber were consistent with the 3A
and 3B condensing chamber indications.

At 2345 hours after investigation and troubleshooting, all Unit 2 Reactor
Water Level Instrumentation (EIIIS:LI) associated with the 2B Reactor Water
Level reference leg condensing chamber (EIIIS:CDU) was declared inoperable.
Review by technical personnel concluded that leaks in the 2B reference leg had
caused the instruments to indicate higher than actual and that the instrument
would not trip within their TS values. A plant shutdown was immediately
initiated to comply with TS 3.0.C. Prompt notification was made to the
Nuclear Regulatory Commission (NRC) on 3/27/92 at 0012 hours. At 0315 hours,
at approximately 30% reactor power, the unit was intentionally scrammed. A
Primary Containment Isolation System (PCIS)(EIIIS:JM) Group II/III isolation
occurred as expected due to Reactor Water level decrease after the scram.
Level was immediately restored using a Reactor Feed Pump (EIIIS:P). At 0325
hours, the PCIS Group II/III isolation logics were reset and affected systems
were restored as necessary. The scram logic was reset at 0335 hours after all
Control Rod Drives were verified to be inserted. Notification was again made
to the NRC at 0941 hours to provide an update of plant conditions. Hot
Shutdown and Cold Shutdown conditions were obtained as required by the TS.

Following the shutdown, inspections of the instrument lines in the Drywell
verified no leakage out of the system. Leaks on instrumentation fittings
outside the Drywell were repaired and the instrument lines were backfilled.

Following inspection and repairs, a plant startup was commenced on 4/4/92 and
power operation was achieved on 4/5/92. Reactor water levels were closely
monitored after startup to ensure proper level indications.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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.

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 7 7 9 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The reactor water level measurement system consists of condensing chambers, associated reference and variable leg sensing lines, differential pressure transmitters (EIIS:PDT), and interfacing logic trip cards. The 2A and 2B condensing chamber reference legs provide inputs to level and pressure instrumentation. The 2B reference leg is independent and redundant to the 2A. The condensing chamber is a device that supplies makeup by condensing steam into water to provide a constant reference leg for various pressure and level transmitters.

In December of 1991 during unit startup, a level deviation was identified between the instruments fed from the 2A and 2B Reactor Water Level condensing chambers.

Walkdowns of accessible instrument sensing lines and instrument racks (EIIS:RK) were performed in December while at 170 psig pressure which identified only one small leak at a point where the instrument sensing line and the instrument body are connected.

As steam production increased and condensate made up the reference leg, the level indications returned to acceptable values. The decision was then made to monitor the leak and fix the identified leak during the next outage. It was considered safer to monitor the leak than attempt a repair while at power which could result in a plant transient.

During the following three months, the difference in the two independent level indications were closely monitored by Station Engineering. Since the difference was very slight and were within the limits specified in Surveillance Test (ST) 9.1-2X, "Surveillance Log", it was considered acceptable.

On 3/19/92, the Reactor Operator (Licensed, Utility) identified that the wide range Reactor Water Level indications changed slightly and the 2B indication started to trend higher than the other channel. An investigation by Station Engineering indicated that the wide range level instrumentation connected to the 2B condensing chamber was about two and one half inches higher than other wide and narrow range level indications using the process computer points.

Station Engineering walkdowns of accessible instrument sensing lines and instrument racks while at rated reactor pressure identified one additional leak that was not present in December. Instrument equalizing valve positions (EIIS:V) were physically verified. Reactor level, pressure, and flow changes verified that sensing lines were not clogged or affected dynamically.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE 1.) COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 80.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-830) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, 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	LER NUMBER (6)			PAGE (3)		
		YEAR 9 2	SEQUENTIAL NUMBER 0 0 5	REVISION NUMBER 0 1 0			

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

Station Engineering discussed operability at this time and concluded that the instrumentation was operable. This was based on loop milliamp values obtained during troubleshooting. The data was given to the Nuclear Engineering and Services Division (NESD) for evaluation. On 3/23/92, NESD evaluated the deviation and provided a maximum deviation value of four and one half inches. This amount of deviation would ensure that all instruments connected to the 2B condensing chamber reference leg would trip within their TS values. This amount of deviation was exceeded on 3/26/92.

Cause of the Event

The cause of this event was a loss of inventory in the 2B condensing chamber reference leg. The loss of inventory was caused by leakage in the system for which the condensation rate could not compensate. A small, long-term inventory loss could have caused an increased volume of noncondensable gases within the chamber. The increased collection of noncondensables in the condensing chamber would reduce the condensation capability. This phenomenon could allow even a small leak to cause the inventory loss observed.

Analysis of the Event

During the period that the level indications from the 2B condensing chamber reference leg deviated by a value in excess of the maximum allowed value, no automatic trip functions were challenged. If reactor level had dropped to the low level trip point, primary containment isolation and core and containment cooling initiation would still have occurred. Since there were no single failures, full initiation of the PCIS and the Emergency Core Cooling Systems (ECCS) (E1IS:BJ,JD,BM,B0) would have been initiated by the instrumentation associated with the 2A condensing chamber reference leg and would have occurred within the TS values. The redundant PCIS and ECCS initiations from the 2B condensing chamber reference leg would still have occurred, but the actuations would not have been in accordance with TS requirements.

Since low reactor water levels did not exist over the period discussed, no actual safety consequences occurred as a result of this event. There could be generic implications associated with this event in that similar piping and condensing chamber configuration designs could be affected. The 2A and 2B condensing chambers installed on Unit 3 are of similar design.

Corrective Actions

Following the shutdown, inspections of the instrument lines in the Drywell verified no leakage out of the system and verified that insulation on the steam line going to the condensing chamber was properly installed. Leaks on instrumentation fittings outside the Drywell were repaired and the instrument lines were backfilled.

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-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, 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	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 2	— 0 0 5	— 0 0	0 5	OF	0 5

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

A Temporary Plant Alteration (TPA) has been installed which will monitor the 2A, 2B, and 3B Reactor Water Level condensing chamber temperatures and ambient temperatures near the 2B condensing chamber. Based on the condensing chamber temperature data obtained from this TPA, the design and installed configuration of the condensing chambers, along with the generic implications associated with this event, will be evaluated. Additional corrective actions or causes resulting from the evaluation will be reported in a revision to this LER as necessary.

Previous Similar Events

There was one previous similar LER (2-90-021) identified in which a shutdown was required due to level instrumentation problems. The corrective actions taken as a result of the previous LER involved tightening the acceptance criteria on the daily ST and increased monitoring of this data. The current event was identified as a result of these corrective actions. As soon as the deviation between redundant instruments exceeded the technical specification limit, a shutdown was initiated.