



**PECO ENERGY**

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U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Docket Nos. 50-277

SUBJECT: Licensee Event Report  
Peach Bottom Atomic Power Station - Units 2

This LER is submitted to report a Technical Specification violation associated with the Reactor Water Clean Up system temperature indicating switch.

Reference:	Docket Nos.	50-277
Report Number:	2-95-004	
Revision Number:	00	
Discovery Date:	08/14/95	
Report Date:	09/13/95	
Facility:	Peach Bottom Atomic Power Station	
	RD1, Box 208, Delta, PA 17314	

This report is submitted pursuant to 10 CFR 50.73 (a)(2)(i)(B).

Sincerely,

GDE/GAJ:gaj  
enclosure

cc: R.A.Burricelli, Public Service Electric & Gas  
R. R. Janati, Commonwealth of Pennsylvania  
INPO Records Center  
T. T. Martin, US NRC, Administrator, Region I  
R. I. McLean, State of Maryland  
W. L. Schmidt, US NRC, Resident Inspector  
A. F. Kirby III, DelMarVa Power  
H. C. Schwemm, VP - Atlantic Electric

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CCN 95-14080

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LICENSEE EVENT REPORT (LER)

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-630), 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			PAGE (3) 1 OF 0 5		
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TITLE (4)  
Technical Specification Violation when a RWCU Temperature Switch was Inoperable

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 8	1 4	9 5	9 5	0 0 4	0 0	0 9	1 3	9 5			0 5 0 0 0
											0 5 0 0 0

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

OPERATING MODE (9) N	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 1 0 0	20.406(a)(1)(ii)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(iii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.406(a)(1)(iii) X	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Anthony J. Wasong - Manager, Experience Assessment	TELEPHONE NUMBER 7 1 7 4 5 6 - 7 1 0 1 4
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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)

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

On 08/14/95 at 0800 hours, it was identified that the thermistor associated with the Reactor Water Cleanup (RWCU) system high temperature instrument (TIS-2-12-099) was not properly seated within its thermowell. Therefore, the instrument loop would not properly respond to temperature changes within the process piping. This is a violation of Tech Spec Table 3.2.A because the associated RWCU subsystem was in service while the instrument loop was unknowingly inoperable. Tech Spec Table 3.2.A requires that the RWCU subsystem be isolated if the associated high temperature instrument loop becomes inoperable. The cause of the thermistor not being properly seated in the thermowell has been determined to be a design deficiency. There were no adverse safety consequences as a result of this event. The calibration sheet for TIS-2-12-099 will be revised to add a note to ensure proper installation of the thermistor. One previous similar event was 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   5   —   0   0   4   —   0   0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
					0   2	OF 0   5

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

Requirements of the Report

This report is submitted pursuant to 10 CFR 50.73 (a)(2)(i)(B) as a result of a Technical Specification (Tech Spec) violation when a instrumentation Limiting Condition for Operation (LCO) was not met.

Unit Conditions at Time of Discovery

Unit 2 was in the "RUN" mode at approximately 100% of thermal reactor power. There were no systems, structures, or components that were inoperable that contributed to the event.

Description of the Event

On 08/14/95 at 0800 hours, during the performance of maintenance activity on a Reactor Water Cleanup (RWCU) system (EHS:CE) high temperature instrument (TIS-2-12-099), it was identified that the thermistor (EHS:TE) associated with this instrument was not properly seated within its thermowell. Therefore, the instrument loop would not properly respond to temperature changes within the process piping. Further investigation revealed that this condition resulted in a violation of Tech Spec Table 3.2.A because the associated RWCU subsystem was in service while the instrument loop was unknowingly inoperable. Tech Spec Table 3.2.A requires that the RWCU subsystem be removed from service and isolated if the associated high temperature instrument loop becomes inoperable.

Prior to this discovery, on 7/31/95, the RWCU system manager was contacted by operations personnel to investigate a spurious isolation of the RWCU system which was initiated by TIS-2-12-099. The investigation revealed that with RWCU in service, TIS-2-12-099 was indicating a higher temperature than other instruments on the same RWCU subsystem. TIS-2-12-099 was considered operable at this time based on the results of the instrument calibration check performed following the RWCU isolation. During the calibration check, the thermistor was verified to be responding to changing temperatures. Based on these results, the higher reading with RWCU in service was determined to be in the conservative direction. However, a decision was made to accelerate an existing plan to replace TIS-2-12-099 which would also allow the associated thermistor to be closely examined during the system outage. During the installation on 8/14/95, the condition described above was discovered.

After discovery of the condition, Instrument & Control (I&C) personnel immediately re-inserted the thermistor into the thermowell. A calibration check was performed satisfactorily and the appropriate Tech Spec LCO was exited.

LICENSEE EVENT REPORT (LER)  
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FACILITY NAME (1)  Peach Bottom Atomic Power Station Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   2   7   7   9   5   —   0   0   4   —   0   0   0   3	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

Cause of the Event

The cause of the thermistor not being properly seated in the thermowell has been determined to be a design deficiency. The thermistor used in this application does not provide a mechanical force to ensure it remains seated in the thermowell. Instead, the current design calls for a thermistor attached to a wire that is manually slid into the thermowell. This is not a typical design for a temperature element. A typical design for a temperature element involves a spring loaded mechanism in the head of the thermowell which provides a constant downward force on the temperature element. The lack of adequate downward force coupled with the horizontal orientation of the thermistor is believed to have caused the thermistor to eventually move away from the bottom of the thermowell. It is unknown exactly how long the thermistor had not been properly seated in the thermowell. However, the last maintenance activity associated with the thermistor involved its replacement in 1989. Therefore, the thermistor must have become unseated in the thermowell sometime between 1989 and the date it was discovered.

This condition was not identified earlier due to the following reasons:

1. Although TIS-2-12-099 has an indicator, it is mounted locally, and is not normally used as an indicator of RWCU system status. Other instruments on the system provide remote readings in the control room to monitor RWCU system status. In addition, this indicator has only been available since 1994 when TS-2-12-099 was replaced with a temperature indicating switch. Prior to 1994, this instrument provided only the isolation feature and had no indicator. The thermistor, however, was not disturbed during the replacement.
2. During the calibration check of TIS-2-12-099, which is performed every three months, the temperature signal from the thermistor is measured and compared to other system parameters to determine if it is operating correctly. However, during normal operation of the RWCU system, the temperature in the room increases to near the temperature of the process being monitored by TIS-2-12-099. Because the thermistor was not fully inserted into the thermowell, it was effectively monitoring room temperature. A recently developed steam leak in the RWCU room combined with extremely hot weather conditions caused the room temperature to increase above the temperature of the process normally monitored by TIS-2-12-099. It is this increase that ultimately led to the discovery of this event.

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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   5	SEQUENTIAL NUMBER —   0   0   4	REVISION NUMBER —   0   0	0   4	OF 0   5

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

Analysis of the Event

No actual safety consequences occurred as a result of this event.

The consequences are considered minimal due to the fact that the purpose of this instrument loop is to isolate the RWCU subsystem on high temperature to prevent degradation of the resin. This isolation provides no safety function but is for equipment protection purposes only. Increasing resin temperature affects RWCU's ability to purify the reactor water. Therefore, had the resin temperature increased above normal operating conditions, routine chemistry sampling would have detected the degradation in reactor water quality.

TIS-2-12-099 is not required to provide an isolation signal during a design basis accident. If a design bases accident had occurred while the thermistor was not properly inserted in the thermowell, the RWCU system would have isolated based on either zero inches reactor level or a Stand By Liquid Control initiation. In addition, had a line break occurred in the RWCU room, the system would have isolated on 300% process piping flow.

Corrective Actions

The thermistor was re-inserted the into the thermowell. In addition, a sealant material was injected into the top of the thermowell to prevent the thermistor from becoming unseated.

The same instrument on Unit 3 was verified to be properly seated in the thermowell. Sealant will also be injected into the thermowell for this instrument to prevent it from becoming unseated.

The calibration sheets for the TIS-2-12-099 and TIS-3-12-099 will be revised to add a note indicating the unique design of the thermistor to ensure appropriate precautions are taken to keep the thermistor properly seated in the thermowell.

The design of thermistor will be evaluated to determine if it can be replaced with a design that provides positive mechanical force to ensure that it remains seated in the thermowell.

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FACILITY NAME (1)  Peach Bottom Atomic Power Station Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   2   7   7   9   5   —   0   0   4   —   0   0   0   5	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

Previous Similar Events

LER 2-77-53 reported an event in which the thermistor associated with TIS-2-12-099 was found to be dislodged from its thermowell. However, the corrective actions taken as a result of LER 2-77-53 were limited to reseating the thermistor in the thermowell and did not involve any other actions to ensure that it remains properly seated. The corrective actions associated with this event are expected to prevent a similar occurrence in the future.