NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Peach Bottom Atomic Power Station - Unit 3	0 5 0 0 0 2 7 8	1 OF 0 3

TITLE (4)
Reactor Low Level Scram While Using RCIC for Level Control While Shutting Down

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 4	1 1	8 6	8 6	— 0 1 0	— 0 0	0 5	0 5	8 6		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 1	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		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
W. C. Birely, Senior Engineer - Licensing Section	AREA CODE 2 1 5 — 8 4 1 — 5 0 4 8

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	
B	S J	V	I 2 0 8	Y							

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)

Abstract: 3-86-10

On April 11, 1986, an automatic actuation of the Reactor Protection System occurred as a result of a low reactor water level condition. Group II and III isolations also occurred as a result of the low level condition. The event occurred while Unit 3 was being shutdown to repair the minimum flow bypass valve on each of the three reactor feedpumps. Due to the lack of minimum flow protection on the feedpumps, the Reactor Core Isolation Cooling (RCIC) system was placed in service for reactor water level control after the last feedpump was removed from service. As reactor pressure was being lowered through the main steam bypass valves, reactor vessel water level was fluctuating. During one of the water level decreases, RCIC was not able to maintain level above the scram point (0 inches) and therefore an automatic scram signal was generated. The bypass valves were closed to stop the level decrease and RCIC then restored vessel water level to normal. The root cause of the event was failure of the feedpump minimum flow valves (AO-3139A, B, C). AO-3139B failure was discovered on April 2, 1986. AO-3139A and C failures were discovered on April 10, 1986. These valves were repaired prior to returning Unit 3 to operation.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT (If more space is required, use additional NRC Form 366A) (17)

Unit Conditions Prior to the Event

Unit 3 in Hot Shutdown

Description of the Event:

On April 11, 1986, at 2016 hours, an automatic actuation of the Reactor Protection System occurred as a result of a low reactor water level condition. Group II and III isolations also occurred as a result of the low level condition. The event occurred while Unit 3 was being shutdown to repair the minimum flow bypass valve on each of the three reactor feedpumps. The lack of minimum flow protection on the feedpumps precluded the use of the feedpumps for reactor level control during the shutdown. The Reactor Core Isolation Cooling (RCIC) system was used for reactor water level control following the removal of the last reactor feedpump from service. Special guidance required raising the reactor water level to +30 inches using the last operating feedpump, manually scramming the unit at 25-30% power, recovering water level using the feedpump after the scram, and allowing the feedpump to trip on high reactor water level (+45 inches). The reactor was then depressurized using main steam bypass valves while controlling reactor water level using RCIC. The dynamic conditions established in the reactor during this method of shutting down cause reactor vessel water level to fluctuate. During one of the water level reductions, RCIC was not able to maintain level above the scram point (0 inches) and therefore an automatic scram signal was generated. The bypass valves were closed to stop the water level decrease and RCIC then restored vessel water level to normal. Reactor water level decreased to -5 inches before RCIC restored level to normal (top of active fuel is -172 inches).

The manufacturer of the feedpump minimum flow valves is ITT Hammel Dahl Conoflow, and the model number is SB-54XW-WXXM-3.

EIIS Codes: Primary Containment Isolation System: JM
Reactor Protection System: JC
Feedwater System: SJ
RCIC System: BN

Consequences of the Event:

The low level scram feature functioned properly.

In the event that the RCIC system (capacity 600 GPM) had not been able to recover reactor water level adequately, the High Pressure Coolant Injection (HPCI) system was available and would have automatically started at -48 inches to recover water level. (HPCI system capacity is 5000 GPM.) There were no adverse consequences of this event.

Cause of the Event:

The root cause of the event was the failure of the feedpump minimum flow bypass valves which necessitated a unique shutdown method. Each of the three valves failed closed as a result of internal valve vibrations while in service which resulted in the separation of the valve stem from the valve plug.

Corrective Actions:

The RCIC system restored vessel level to normal. Shutdown continued as planned and at approximately 600 psig reactor pressure, the Condensate System was used to control reactor water level. At this point, RCIC was removed from service as it was no longer needed to control reactor vessel level.

The three feedpump minimum flow bypass valves were repaired prior to returning Unit 3 to power operation.

Previous Similar Occurrences:

None.

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May 5, 1986

Docket No. 50-278

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Licensee Event Report
Peach Bottom Atomic Power Station - Unit 3

This LER concerns the low reactor water level scram signal which occurred while shutting down Unit 3.

Reference:	Docket No. 50-278
Report Number:	3-86-10
Revision Number:	00
Event Date:	April 11, 1986
Report Date:	May 5, 1986
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).

Very truly yours,

G. M. Leitch
Superintendent
Nuclear Generation Division

cc: Dr. Thomas E. Murley, Administrator, Region I, USNRC
T. P. Johnson, NRC Resident Inspector

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