CCN-89-14211



PEACH BOTTOM-THE POWER OF EXCELLENCE

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December 22, 1989

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 a leaking RCIC check valve.

Reference:	Docket No. 50-277
Report Number:	2-89-030
Revision Number:	00
Event Date:	11/26/89
Report Date:	12/26/89
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).

Sincerel

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

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On November 26, 1989, at 0515 hours a steam leak was discovered coming from the packing on Unit 2 Reactor Core Isolation Cooling system (RCIC) injection check valve A0-22. Although the leakage rate was not quantified it was conservatively assumed to be greater than allowable limits. This rendered outboard RCIC valve MO-21 unable to perform its containment boundary function. The cause of the steam leak was mechanical failure of the AO-22 valve stem packing. At 1020 hours a plant shutdown was initiated as required by Technical Specifications. Reactor shutdown was necessary to repair the valve. At 1722 hours a manual scram was inserted in cordance with the normal plant shutdown procedure GP-3 from 28% reactor power. A rrimary Containment Isolation System (PCIS) Group II & III actuation occurred as expected due to reactor vessel low water level. The low water level was the result of void collapse upon insertion of the control rods. Normal reactor level was restored by the feedwater control system. The full scram and PCIS Group II and III isolation signals were reset and affected systems were returned to normal. Modification or replacement of this valve with an improved design will be pursued on a schedule which permits the work to occur during the next refueling outage. No actual safety consequences occurred as a result of this event. One previous similar LER was identified.

### LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3160-0104 EXPIRES: 8/31/88

FACILITY NAME (1) Peach Bottom Atomic Power Station		DOCKET NUMBER (2)							LER NUMBER (6)								PAGE (3)				
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# Requirements for the Report

This report is required per 10 CFR50.73(a)(2)(i)(A) due to the completion of a reactor shutdown required by Technical Specification 3.7.D.2.d.

# Unit Status at Time of Event

Unit 2 was in the Run Mode at 100 percent power.

# Description of Event

On November 26, 1989, at 0515 hours during performance of routine operator rounds a steam leak was discovered coming from the packing of Unit 2 Reactor Core Isolation Cooling (RCIC) (EIIS:BN) system injection check valve (EIIS:V) A0-22. This valve is part of the primary containment boundary, located outside primary containment. Although the leakage rate was not quantified the maximum pathway leakage was conservatively assumed to be greater than allowable limits. Prompt telephone notification of this event to the Nuclear Regulatory Commission reported a breach of primary containment integrity. Although it was subsequently determined primary containment integrity as defined in the Technical Specification was not violated, the outboard RCIC containment boundary valve MO-21 would not have been able to perform its containment function because of the packing leak from AO-22 which is inboard of MO-21. At 1020 hours a reactor (EIIS:BC) shutdown was initiated as required by Technica! Specifications 3.7.D.2.d. At 1722 hours with Unit 2 at approximately 28% reactor power the reactor mode switch was taken to the Shutdown Mode and manual scram inserted in accordance with normal plant shutdown procedure GP-3. A Primary Containment Isolation System (PCIS) Group II and III actuation occurred due to an expected reactor vessel (EIIS:RPV) low water level signal when reactor water level reached the zero inch level (174 inches above the top of active fuel). Normal reactor level was immediately restored by the feedwater control system (EIIS: JK). By 1750 the scram and PCIS isolations were reset and affected systems were returned to normal. By 0430 hours on November 27, 1989, Unit 2 was in Cold Shutdown. By 1500 hours repair of RCIC injection check valve A0-22 was completed.

#### Cause of the Event

The cause of the steam leak was mechanical failure of the AO-22 valve steam packing. The exact cause of the packing failure is unknown but is believed to be excessive stress on the valve packing due to the configuration of the valve in this application.

## Analysis of the Event

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

RCIC check valve A0-22 is on the RCIC injection line which connects into the "B" Feedwater (EIIS:SJ) line outside primary containment (see attached simplified diagram). Primary Containment Integrity as defined in Technical Specifications was not violated since Feedwater system check valve 28B and valve M0-29B, inside primary containment, remained operable throughout this event. Reactor shutdown was necessary in order to repair valve A0-22. The low reactor water level, which resulted in a

U.S. NUCLEAR REC (9-83) LICENSEE EVENT REPORT (LER) TEXT CONTINUATION APPROVED O EXPIRES: 8/31										
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Group II and III PCIS actuation, was the result of void collapse upon insertion of the control rods (EIIS:ROD) during the manual scram. This phenomenon is not unusual or unexpected during a reactor scram and is immediately compensated by the feedwater control system. The operability of RCIC was unaffected by the leaking check valve.

# Corrective Actions

Unit 2 was brought to the Cold condition and the RCIC check valve packing was replaced and tested to verify no leakage. Modification or replacement of A0-22 with an improved design will be pursued on a schedule which permits the work to occur during the next refueling outage. This valve is included in the Preventive Maintenance Program which requires inspection of packing every second refueling outage for signs of degradation and consideration of adjustment for compression.

# Previous Similar Events

RCIC check valve AO-22 was identified in LER 2-86-019 as having excessive leak rate through the valve packing. However, this was discovered during 10 CFR50 Appendix J Type B and C local leak rate testing while Unit 2 was shutdown, and was attributed to normal packing degradation.

