



PEACH BOTTOM—THE POWER OF EXCELLENCE

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION

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July 22, 1991

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 manual SCRAM due to loss of condenser vacuum following isolation of the offgas recombiner caused by relief valve lifting prematurely.

Reference:	Docket No. 50-277
Report Number:	2-91-022
Revision Number:	00
Event Date:	06/27/91
Report Date:	07/22/91
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).

Sincerely,

A handwritten signature in cursive script, appearing to read "John J. Lyash".

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

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LICENSEE EVENT REPORT (LER)

On 6/27/91 at 1052 hours, an Offgas Recombiner isolation occurred causing main condenser vacuum to begin decreasing. A fast reactor power reduction was initiated in accordance with the procedure for a loss of main condenser vacuum. At 1106 hours, a manual scram was initiated by placing the mode switch in shutdown following the receipt of a reactor auto half scram signal. A Group II and III isolation occurred as a result of the manual scram. The cause of the event has been determined to be a defective relief valve and the lack of complete guidance for restoring the isolated system. The event has been discussed with the involved individuals and the pertinent information will be provided to Operations and other members of the technical staff. The operating procedure for recovery will be revised to prevent future recurrences. No actual safety consequences occurred as a result of this event. There were two previous similar events.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

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

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

Requirements for the Report

This report is required per 10CFR50.73(a)(2)(iv) because of a manually initiated scram and resulting primary containment isolation.

Unit Condition At Time of Event

Unit 2 was in the RUN mode at approximately 100% thermal reactor (EIIS:EA) power. There were no other systems, structures, or components that were inoperable that contributed to the event.

Description of Event

On 6/27/91 at 1052 hours, an Offgas Recombiner (EIIS:WF) isolation occurred causing the main condenser (EIIS:SG) vacuum to begin decreasing. After an unsuccessful attempt to reset the Offgas Recombiner isolation, a fast reactor power reduction was initiated in accordance with the "Condenser Low Vacuum" Operational Transient Procedure (OT-106) and the "Fast Reactor Power Reduction" General Procedure (GP-9-3).

At 1106 hours, at approximately 67% power, a reactor auto half scram signal (EIIS:JC) was received due to the rapidly decreasing main condenser vacuum. Unit 2 was then manually scrammed by placing the mode switch in the "SHUTDOWN" position. A Group II and III primary containment isolation (EIIS:JM) occurred as expected due to void collapse upon insertion of the control rods, when reactor water level decreased below the zero inch level (172 inches above top of active fuel). The Reactor Feedpumps (EIIS:SK) were in service to maintain the reactor vessel (EIIS:RPV) level after the scram.

Cause of the Event

The cause of the event has been determined to be the following:

While troubleshooting the "2B" Steam Jet Air Ejector (SJAE) to determine the cause of a previous malfunction, the Offgas Recombiner system isolated while steam was admitted into the standby "2B" SJAE. The boundary was pressurized with steam in order to determine if the Relief Valve (RV) (EIIS:RV) was lifting prematurely or the control valve was oscillating erratically. The "2B" SJAE RV lifted and cycled at less than the setpoint pressure during gradual pressurization of the standby SJAE. The removal of the non condensables in the standby SJAE and RV cycling caused system instabilities which resulted in Offgas Recombiner isolations due to SJAE high discharge pressure and Recombiner low steam flow.

A contributing factor to this event was that the operating procedures for swapping the SJAE's and recovery from an Offgas Recombiner isolation were less than adequate since they could have been enhanced to provide additional cautions and instructions to guide operator actions.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 6/31/88

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 1	— 0 2 2	— 0 0	0 3	OF	0 3

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Analysis of the Event

No actual safety consequences occurred as a result of this event. The isolation of the non-safety related offgas recombiner and the subsequent decrease in the main condenser vacuum was not a safety concern. The automatic scram signal on loss of main condenser vacuum is to protect the Main Turbine condenser from overpressurization and to anticipate an automatic scram resulting from the closure of the turbine stop valves. The manual scram initiated as a result of this event was conservative in that manual action was taken prior to automatic functions being challenged.

Corrective Actions

The RV has been replaced and the setpoint was verified to be correct.

The operating procedures will be revised to provide additional guidance when placing a standby SJAE inservice and to provide more detailed directions for the recovery from Offgas Recombiner isolations.

The event has been discussed with the involved individuals. The pertinent information from this event will be provided to the appropriate Operations personnel and members of the technical staff.

Additionally, the low vacuum alarm setpoint will be changed to provide Operations with more time to respond to Offgas Recombiner transients.

Previous Similar Events

Two previous similar events were identified. LER 3-85-07 reported an event in which an automatic scram occurred as a result of a loss of main condenser vacuum. The cause of the loss of vacuum was the failure to replace a plug on a feedwater heater relief valve following maintenance. The corrective actions involved installing the missing plug. LER 3-90-08 reported an event in which a manual scram was initiated as a result of loss of main condenser vacuum due to a failed control valve. The corrective actions taken involved repairing the Recombiner condensate cooling water inlet control valve. Since the causes are not similar, the corrective actions could not have been expected to prevent the event.