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A Unit of PECO Energy

PECO Energy Company
1848 Lay Road
Delta, PA 17314-9032
717 456 7014

November 20, 2000

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

Docket No. 50-277
SUBJECT: Licensee Event Report, Peach Bottom Atomic Power Station Unit 2

This LER reports a loss of safety function for the primary containment and the completion of a plant shutdown required by Technical Specifications due to an inoperable Suppression Chamber-to-Drywell Vacuum Breaker. The LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(A) and 10CFR50.73(a)(2)(v).

Reference: Docket No. 50-277
Report Number: 2-00-006
Revision Number: 00
Event Date: 10/22/00
Report Date: 11/16/00

Facility: Peach Bottom Atomic Power Station Unit 2
1848 Lay Road, Delta, PA 17314-9032

Sincerely,



Gordon L. Johnston, Plant Manager

GLJ/djf

enclosure

cc: PSE&G, Financial Controls and Co-owner Affairs
R. R. Janati, Commonwealth of Pennsylvania
INPO Records Center
H. J. Miller, US NRC, Administrator, Region I
R. I. McLean, State of Maryland
A. C. McMurtray, US NRC, Senior Resident Inspector
A. F. Kirby III, DelMarVa Power

CCN 00-14089

IE22

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001
Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to the industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 2	DOCKET NUMBER (2) 05000277	PAGE (3) 1 of 4
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TITLE (4)
Primary Containment Inoperable due to a Suppression Chamber-to-Drywell Vacuum Breaker valve disk not being properly seated

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 Name	Docket Number
10	22	2000	2000	006	00	11	20	2000	Facility Name	Docket Number

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)								
POWER LEVEL (10)	100%	20.2201(B)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)		
		20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)		
		20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71		
		20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER		
		20.2203(a)(2)(iii)		50.36(c)(1)	X	50.73(a)(2)(v)		Specify in Abstract below		
		20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		or in NRC Form 336A		

LICENSEE CONTACT FOR THIS LER (12)

NAME Andrew Winter	TELEPHONE NUMBER (include area code) 717-456-3598
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

Cause	System	Component	Manufacturer	Reportable to EPIX	Cause	System	Component	Manufacturer	Reportable to EPIX
D	SAA	RV	V052	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (if yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED Submission Date (15)	Month	Day	Year
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On 10/22/00, a controlled plant shutdown was initiated due to Primary Containment being declared inoperable. Primary Containment had been declared inoperable when a Drywell to Suppression Chamber bypass test indicated that the 'H' Suppression Chamber-to-Drywell Vacuum Breaker was not seated. To perform repairs to the 'H' Vacuum Breaker, the plant was shutdown and Mode 4 was achieved exiting a plant operating condition in which Primary Containment was required to be operable. The cause of the event is the failure of the 'H' Suppression Chamber-to-Drywell Vacuum Breaker to properly seat when exercised on 10/22/00. This was due to a missing retaining clip on the hinge shaft of the vacuum breaker. The missing retaining clip allowed movement on the hinge shaft resulting in misalignment between the valve disk and the seat. The 'H' Vacuum Breaker was repaired and declared operable on 10/24/00. The preventative maintenance procedure will be revised to ensure that the vacuum breaker hinge pin shaft is thoroughly inspected in the future.

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TEXT (If more space is required, use additional copies of NRC form 336A) (17)

Requirements of the Report

This LER is being submitted pursuant to the requirements of 10 CFR 50.73 (a)(2)(i)(A) and 10CFR 50.73 (a)(2)(v) due to primary containment (EISS:NH) becoming inoperable resulting in a plant shutdown required by Technical Specifications.

Unit Conditions at Time of Event

Unit 2 was in Mode 1 (RUN) at the time of occurrence of the event. Other than the 'H' Suppression Chamber-to-Drywell Vacuum Breaker (EISS:RV) being tested, all other Suppression Chamber-to-Drywell Vacuum Breakers were initially closed and seated at the time of the event. There were no other systems, structures, or components which were inoperable and contributed to this event.

Description of the Event

On 10/22/00, at 2050 hours, a controlled plant shutdown required by Technical Specifications was initiated due to Primary Containment being declared inoperable at 1655 hours. Primary Containment had been declared inoperable when a Drywell to Suppression Chamber (EISS:BF) bypass test indicated that the 'H' Suppression Chamber-to-Drywell Vacuum Breaker was not seated. Previously, at approximately 0900 hours, as a result of a routine surveillance test that exercises the Suppression Chamber-to-Drywell Vacuum Breakers, Operations personnel (Utility, Licensed) determined that the 'H' Vacuum Breaker had not indicated that it was properly re-seated when exercised and, therefore, was considered inoperable for closing. The 'H' Vacuum Breaker was confirmed to be properly seated prior to being exercised during the surveillance test.

On 10/23/00, at approximately 0130 hours, a drywell entry was initiated to inspect the 'H' Vacuum Breaker (L & J Technologies, Model LD 240-331). The valve disk was confirmed to be off-center relative to the valve seat, and therefore, not properly seated. The valve disk was manually centered on the seat and the Vacuum Breaker was left in the fully closed position.

To perform repairs to the 'H' Vacuum Breaker, the plant was shutdown at 0540 hours when the Mode Switch was placed in shutdown. The reactor was cooled down and Mode 4 was achieved at 1323 hours exiting a plant operating condition in which Primary Containment was required to be operable.

All actions required by Technical Specifications were properly performed within the Technical Specification completion times. The 'H' Vacuum Breaker was repaired and declared operable on 10/24/00 at approximately 0630 hours.

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Cause of the Event

The cause of the event is the failure of the 'H' Suppression Chamber-to-Drywell Vacuum Breaker to properly seat when exercised on 10/22/00. This was due to a missing retaining clip on the hinge shaft of the vacuum breaker. The missing retaining clip allowed movement of the hinge shaft resulting in misalignment between the valve disk and the seat. Therefore, there was excessive leakage through the vacuum breaker when in the closed position.

The exact cause of the retaining clip being missing is unknown. A search of maintenance records indicated that a retaining clip on the 'H' Vacuum Breaker was found missing and replaced in 1991 during routine maintenance. The search identified no other similar concerns on any of the other vacuum breakers. The reason why this maintenance performed in 1991 was not effective could not be determined. A contributing cause to the event is that the preventative maintenance scope did not include the inspection of the hinge pin including the retaining clips. Therefore, the preventative maintenance performed in September, 2000 did not identify the missing hinge pin retaining clip although it did verify proper operation of the vacuum breaker.

Analysis of the Event

There were no actual safety consequences due to this event.

The Suppression Chamber-to-Drywell Vacuum Breakers safety function is twofold. First, 9 of the 12 Vacuum Breakers must be capable of opening to provide vacuum relief for the primary containment drywell. This ensures that the post-LOCA drywell negative pressure is not excessive during design events. This safety function of the Vacuum Breakers was unaffected by this event. The 'H' Vacuum Breaker as well as all other Vacuum Breakers remained operable throughout this event for opening to provide the vacuum relief function.

The second function of the Vacuum Breakers is that all 12 are to be maintained in the closed and seated position to ensure that there is no bypass leakage should a design basis event occur. This ensures that the steam flow into the drywell is directed to the suppression chamber mitigating any potential for over-pressurization of the primary containment. The design basis analyses require the vacuum breaker to be initially closed during a postulated event and to remain closed until the suppression pool is at a positive pressure relative to the drywell. The safety function of the Vacuum Breaker opening occurs in the post event cool-down phase at which time the energy released during a design basis event has already been absorbed by the suppression pool. Re-closure of the Vacuum Breaker, subsequent to opening, is not required to prevent suppression chamber over-pressurization.

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Prior to exercising the vacuum breaker on 10/22/00, all Vacuum Breakers were in the closed position and therefore, were operable. The Vacuum Breaker was not closed for approximately 18 hours following its failure to re-close during exercise testing. The safety function of the Vacuum Breaker being in the closed position was lost during this period of time. Mode 4 was achieved well within the Technical Specification allowable completion time. Based on a probabilistic safety assessment, there existed no significant risk to plant safety due to the extremely low likelihood of a design basis event occurring coincidentally with this short period of inoperability. Had the design basis event occurred, emergency response procedures were in place to minimize the impact on containment using the containment spray subsystems.

Corrective Actions

The plant entered Mode 4 on 10/23/00 thereby exiting a plant operating condition in which Primary Containment was required to be operable.

The 'H' Vacuum Breaker was thoroughly inspected and repaired. The Vacuum Breaker was tested and returned to an operable status on 10/24/00. All other Suppression Chamber-to-Drywell Vacuum Breakers were inspected for similar conditions and no concerns were noted.

The preventative maintenance procedure will be revised to ensure that the vacuum breaker hinge pin shaft is thoroughly inspected in the future (including similar Unit 3 Vacuum Breakers).

Appropriate maintenance personnel will receive additional information relative to this event.

Previous Events

No previous events were identified where primary containment become inoperable or a plant shutdown was required due to a similar failure as discussed in this report.