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10CFR 50.73

January 30, 2004

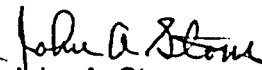
U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Peach Bottom Atomic Power Station (PBAPS) Unit 2
Facility Operating License Nos. DPR-44
NRC Docket No. 50-277

Subject: Licensee Event Report (LER) 2-03-05

This LER reports a loss of safety function involving the High Pressure Coolant Injection System (HPCI) resulting from less than adequate materiel condition of a suction flow path check valve. In accordance with NEI 99-04, the regulatory commitment contained in this correspondence is to restore compliance with the regulations. The specific methods that are planned to restore and maintain compliance are discussed in the LER. If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,


John A. Stone
Plant Manager
Peach Bottom Atomic Power Station

JAS/djf/CR 189956

Attachment

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
C. W. Smith, US NRC, Senior Resident Inspector

CCN 04-14007

JE22

SUMMARY OF EXELON NUCLEAR COMMITMENTS

The following table identifies commitments made in this document by Exelon Nuclear. (Any other actions discussed in the submittal represent intended or planned actions by Exelon Nuclear. They are described to the NRC for the NRC's information and are not regulatory commitments.)

Commitment	Committed Date or "Outage"
In accordance with NEI 99-04, the regulatory commitment contained in this correspondence is to restore compliance with the regulations. The specific methods that are planned to restore and maintain compliance are discussed in the LER.	In accordance with the Corrective Action Program

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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)

1. FACILITY NAME Peach Bottom Atomic Power Station, Unit 2	2. DOCKET NUMBER 05000 277	3. PAGE 1 OF 4
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4. TITLE
Loss of High Pressure Coolant Injection System Function as a Result of Less Than Adequate Check Valve Condition

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
12	10	03	03	05	00	1	30	04	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
		20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)				
10. POWER LEVEL	100	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)				
		20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)				
		20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)	OTHER Specify in Abstract below or in NRC Form 366A			
		20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)					
		20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)					
		20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	X 50.73(a)(2)(v)(D)					
		20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)					
		20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)					
		20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)					

12. LICENSEE CONTACT FOR THIS LER

NAME Ellen P. Anderson - Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) (717) 456-3588
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
E	BJ	V	A585	Y					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO		MONTH	DAY	YEAR

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On 12/10/03, at approximately 1040 hours, during the performance of a routine Logic System Functional Test for the High Pressure Coolant Injection (HPCI) system, Operations personnel detected an unexpected condition when a Suppression Pool high water level alarm was received. Based on engineering reviews, it was subsequently determined at approximately 1800 hours that the HPCI check valve 61 in the system suction path from the Suppression Pool was not properly closed. This resulted in the HPCI system possibly not being capable of performing its intended restart design function for certain design bases events. For these events, with HPCI aligned to the Suppression Pool, the HPCI system piping could be voided while the system is not operating resulting in water hammer conditions if the HPCI system would need to restart after performing its design function. There were no actual safety consequences or water hammer events associated with this event. The cause of the HPCI suction check valve 61 not closing properly was attributed to the valve disc not seating properly. This was caused by excessive clearances of certain check valve internal components due to maintenance procedures not containing adequate criteria concerning component clearances and alignment of the valve disc to the seat. In body repairs were made to the HPCI Suction Check Valve 61 and HPCI was returned to a fully operable condition by approximately 1445 hours on 12/12/03. Maintenance procedures will be upgraded.

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Peach Bottom Atomic Power Station, Unit 2	05000277	03	05	00	2 OF 4

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Unit Conditions Prior to the Event

Unit 2 was in Mode 1 and operating at approximately 100% rated thermal power when the event occurred. There were no structures, systems or components out of service that contributed to this event. At the time of discovery, the High Pressure Coolant Injection (HPCI) System was considered inoperable to support a routine Logic System Functional Test (LSFT). The inoperability had been declared on 12/10/03, at approximately 0900 hours. The HPCI system was not in operation at the time of discovery.

Description of the Event

On 12/10/03, at approximately 1040 hours, during the performance of a routine Logic System Functional Test for the High Pressure Coolant Injection (HPCI) (EIIS: BJ) system, Operations personnel detected an unexpected condition when a Suppression Pool high water level alarm was received. Based on engineering reviews, it was subsequently determined at approximately 1800 hours that the HPCI check valve 61 (EIIS: V) in the system suction path from the Suppression Pool (EIIS: TK) was not properly closed. This allowed water from the Condensate Storage Tank (CST) (EIIS: TK) suction source to flow to the Suppression Pool when the HPCI system suction valve swapover function was being tested. The check valve condition resulted in the HPCI system possibly not being capable of performing its intended restart design function for certain design bases events. For limited design events where HPCI suction would need to swap over from the normal Condensate Storage Tank (CST) suction source to the Suppression Pool, HPCI pump discharge piping could be voided as a result of water draining back to the Suppression Pool through the open check valve 61 while the HPCI system is not in operation. This voiding in the HPCI piping could result in water hammer conditions when the HPCI system would need to restart and could possibly result in loss of integrity of the HPCI pump (EIIS: P) discharge piping.

At the time of discovery, a Logic System Functional Test of the HPCI system was being performed. The HPCI system was not in operation. The swap over logic that controls the HPCI system suction path being either from the CST or Suppression Pool was being tested. When the normally closed motor operated suction valves (MO-57 and MO-58) from the Suppression Pool were opened as part of the test, water from the CST flowed back through the open check valve located between the MO-57 and MO-58 valves to the Suppression Pool until the CST suction line isolation valve MO-17 closed. The CST suction line isolation valve MO-17 closes when the MO-57 and MO-58 valves are open. Operations personnel promptly halted the LSFT at approximately 1100 hours. The test performance was exited at approximately 1200 hours. Although HPCI was considered inoperable, HPCI was returned to a condition of being available for automatic injection using the CST as a suction source at approximately 1415 hours.

Troubleshooting of the HPCI suction check valve 61 was completed by 12/11/03 at approximately 0100 hours confirming that the check valve could not be fully closed.

This condition was promptly reported to the NRC on 12/10/03 at approximately 1150 hours pursuant to the requirements of 10CFR 50.72(b)(3)(v)(D) (Event Notification # 40384).

In body repairs were made to the HPCI Suction Check Valve 61 and HPCI was declared operable by approximately 1445 hours on 12/12/03.

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		03	- 05	- 00		

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Analysis of the Event

There were no actual safety consequences or actual water hammer events associated with this event.

The HPCI system is designed with two suction flow paths: the CST and the Suppression Pool flow paths. Normally, HPCI is aligned in the standby mode to the CST during plant operations. Transfer to the Suppression Pool suction source occurs if there is a low CST water level or Suppression Pool high water level.

While normally aligned to the CST, the suction flow path from the Suppression Pool is isolated using the MO-57 and MO-58 valves. Since the check valve 61 is between these two motor operated valves, the check valve performance would not have impacted HPCI system performance when aligned to the CST suction source. Therefore, for design basis events with HPCI aligned from the normal CST suction source, there would be no impact as a result of the check valve 61 condition. However, for certain design events (e.g. loss-of-offsite-power occurrences, station blackouts, anticipated transient without scram and fire safe shutdown), HPCI may be required to restart for these events. If HPCI restarted while aligned to the CST, there would be no HPCI performance impact as a result of the check valve 61 condition. If the suction source had been swapped over to the Suppression Pool, then the HPCI flow path piping could be drained of water to the Suppression Pool while the system is not running. If the system was required to restart, then a water hammer condition could exist and the ability for HPCI to perform its intended design function for restart could not be assured due to potential loss of piping integrity.

HPCI was considered as Technical Specification inoperable from 12/10/03 at approximately 0900 hours (start of HPCI LSFT test) to 12/12/03 at approximately 1445 hours when HPCI was declared operable by Operations personnel. During this time period, the Reactor Core Isolation Cooling (RCIC) system and the Automatic Depressurization System (ADS) were both fully operable to support high pressure cooling requirements for design basis events.

As a result of the leaking check valve, approximately 16,000 gallons of water were moved from the CST to Suppression Pool. Technical Specification requirements for Suppression Pool inventory were complied with throughout the event. The HPCI suction source from the CST isolation valve (MO-17) operated properly during the event.

A review of HPCI operations was performed by Engineering personnel to determine the length of time this condition may have existed. HPCI was operated for a routine pump, valve and flow test on 12/9/03 with no abnormalities noted. However, since HPCI was not operated again until discovery of the problem with the check valve on 12/10/03, it can be concluded that the check valve did not re-seat properly following the 12/9/03 HPCI run. The previous occurrence of HPCI operating was on 9/15/03 during a dual unit scram (see LER 2-03-04). During this event HPCI restarted multiple times while aligned to the Suppression Pool for its suction flow path. HPCI performed its design function at this time.

A probabilistic risk analysis of this event was performed and it was determined that based on a short duration of HPCI inoperability for limited design events, there was only a minor risk significance involved with this event.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Cause of the Event

The cause of the HPCI suction check valve 61 not closing properly was attributed to the valve disc not seating properly on the valve seat. This was primarily caused by excessive clearance that existed between the disc post and the disc arm. This condition had no affect on the valve disc opening. However, when the valve disc would close, this condition could result in slight cocking of the disc relative to the seat, thereby resulting in improper disc seating. The underlying cause of the condition is attributed to less than adequate direction in the associated maintenance procedures concerning the specific criteria for the clearances and the verification of the as-left alignment of the valve disc to the seat. The valve was last worked in April of 2002 and had operated properly since that time. However, the excessive clearances combined with normal wear in the in-body components resulted in the inoperable condition of the valve discovered on 12/10/03.

The check valve is a 16-inch Free Flow Reverse Current Valve with Double Bearing Covers originally supplied by Atwood & Morrill Co.

Corrective Actions

Troubleshooting of the HPCI suction check valve 61 was completed by 12/11/03 at approximately 0100 hours confirming that the check valve could not be fully closed.

In-body repairs were made to the HPCI Suction Check Valve 61 and HPCI was returned to a fully operable condition by approximately 1445 hours on 12/12/03. The valve manufacturer was consulted and appropriate valve in-body component clearances were determined.

Maintenance procedures will be upgraded to provide enhanced guidance on valve assembly including appropriate valve in-body component clearances and positioning of the valve disc. This will result in assurance of proper alignment of the valve disc to the valve seat.

Additional corrective actions are being evaluated in accordance with the corrective action program.

Maintenance records of the similar Unit 3 HPCI 61 check valve were reviewed resulting in confidence concerning the operability of the Unit 3 valve. An extent of condition review is being performed in accordance with the corrective action program for other similar check valves.

Previous Similar Occurrences

A similar event was reported in LER 3-01-01 concerning leakage through the corresponding check valve for Unit 3. Also, in-body maintenance was performed on the Unit 2 HPCI check valve 61 in April of 2002. Actions involved with these previous occurrences were limited to repairing the check valves and did not include upgrading the maintenance procedures with enhanced guidance concerning in-body clearances.