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10CFR 50.73

November 21, 2005

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

Peach Bottom Atomic Power Station (PBAPS) Unit 3
Facility Operating License No. DPR-56
NRC Docket No. 50-278

Subject: Licensee Event Report (LER) 3-05-04

This LER reports a condition prohibited by Technical Specifications involving four Safety Relief Valves (SRVs) that did not meet their $\pm$ 1% set point tolerance when tested in the laboratory. Additionally, one other SRV, when tested, did not properly re-seat during testing. 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,

Joseph P. Grimes
Plant Manager
Peach Bottom Atomic Power Station

JPG/djf/CR 381079 / 381063

Attachment
cc: PSE&G, Financial Controls and Co-owner Affairs
R. R. Janati, Commonwealth of Pennsylvania
INPO Records Center
S. Collins, US NRC, Administrator, Region I
R. I. McLean, State of Maryland
US NRC, Senior Resident Inspector

CCN 05-14101

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)	Estimated burden per response to comply with this mandatory 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 and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 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.

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4. TITLE
Laboratory Analysis Identifies Safety Relief Valve Set Point and Performance Deficiencies

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER 05000
10	2	2005	05	- 04 -	0	11	22	2005	FACILITY NAME	DOCKET NUMBER 05000

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

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
PBAPS Unit 3, James Mallon, Regulatory Assurance Manager	717-456-3351

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	SB	RV	T020	Y					

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

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

Based on information received on 10/2/05 from a laboratory performing Safety Relief Valve (SRV) as-found testing, Site Engineering personnel determined that SRV set point and performance deficiencies existed with five SRVs that were installed during the 15th operating cycle for Unit 3. Four of the SRVs were determined to have their as-found set points in excess of the Technical Specification allowable ± 1% tolerance. In addition, one additional SRV was found to not properly re-close when tested. The cause of the four SRVs being outside of their allowable as-found set points is due to set point drift. Concerning the failure of the SRV to re-close, the preliminary laboratory failure analysis identified that the main valve disc had not properly re-seated when closing due to misalignment of the main valve disc spring. The valve was last refurbished in February 2001. The five SRVs were replaced with different SRVs for the 16th Unit 3 operating cycle. Additional assessment and appropriate corrective actions concerning SRV refurbishment vendor work practices will be further assessed as part of the Corrective Action Program. There were no actual safety consequences associated with this event.

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

Unit Conditions Prior to Discovery of the Event

Unit 3 was in Mode 5 for its 15th Refueling Outage when the event was discovered on 10/2/05. The condition was discovered during routine laboratory as-found testing for Safety Relief Valves (SRVs) removed during the 15th Unit 3 Refueling Outage. There were no structures, systems or components out of service that contributed to this event.

Description of the Event

Based on information received on 10/2/05 from a laboratory performing SRV (EIIS: RV) as-found testing, Site Engineering personnel determined that SRV set point and performance deficiencies existed with five SRVs that were installed during the 15th operating cycle for Unit 3. These five SRVs had been removed during the 15th Refueling Outage for Unit 3 and were sent to an off-site laboratory for as-found testing and routine refurbishment. Four of the SRVs were determined to have their as-found set points in excess of the Technical Specification allowable ± 1% tolerance. All four SRVs were well within their ASME Code allowable ±3% tolerance. The four SRVs as-found set points were as follows:

SRV Serial Number (S/N)	Required Set Point (psig)	As-Found Set Point (psig)	% Outside of Technical Specification Allowable Tolerance
179	1143 - 1167	1142	- 0.13%
174	1143 - 1167	1136	- 0.64%
23	1123 - 1147	1114	- 0.85%
21	1133 - 1157	1129	- 0.40%

In addition, one additional SRV (S/N 193) was found with performance concerns. Specifically, the SRV would not properly re-close when tested. This SRV was found to have its setpoint within its ± 1% tolerance lift pressure tolerance. Normally, SRVs should re-close shortly after the first stage pilot disc fully re-seats.

The five SRVs were replaced with different SRVs for the 16th Unit 3 operating cycle.

This report is being submitted pursuant to:

1. 10CFR 50.73(a)(2)(i)(B) - Conditions Prohibited by Technical Specifications - Technical Specification Limiting Condition for Operation (LCO) 3.4.3 requires that 11 of the 13 installed SRVs / Safety Valves (SVs) be operable. Contrary to this requirement, four SRVs were found with set points outside of the Technical Specification requirements.
2. 10CFR 50.73(a)(2)(vii) – Multiple Inoperable Trains in a Single System – Technical Specification LCO 3.4.3 requires that 11 of the 13 installed SRVs / SVs be operable. PBAPS has 11 SRVs and 2 SVs installed on the main steam system. Because four SRVs were found outside of the ± 1% SRV set point tolerance, this resulted in a condition where two of the 'required' SRVs were considered to be outside of their ±1% set point tolerance during plant operations based on a common cause.

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

Analysis of the Event

There were no actual safety consequences associated with this event.

The ASME Boiler and Pressure Vessel Code requires that the Reactor Pressure Vessel (EIIS: RCT) be protected from overpressure during upset conditions by self-actuated relief valves. As part of the nuclear pressure relief system, the size and number of SRVs and SVs are selected such that the peak pressure in the nuclear system will not exceed the ASME Code limits for the Reactor Coolant Pressure Boundary. The 11 installed SRVs exhaust steam through discharge lines to a point below the minimum water level in the Suppression Pool. The 2 installed SVs discharge steam directly to the Drywell. The SRVs and SVs are located on the four main steam lines (EIIS: SB) within Primary Containment. The SRVs are 'three-stage' valves consisting of a main valve disc and piston (third stage) operated by a second stage disc and piston displaced by either a first stage pressure-sensing pilot (for overpressure protection) or a pneumatically-operated mechanical push rod (for remote-manual operation).

During Unit 3 Cycle 15 operations, there were no plant transients that required automatic SRV/SV operation. The as-found set points for the four SRVs that tested outside of their Technical Specification allowable range were slightly low. There were a total of five SRVs and one SV removed for testing and replacement during the 15th Refueling Outage. All four SRVs outside of their Technical Specification allowable range were well within the ASME Code allowable of $\pm$3%. The low as-found set points are conservative with respect to the over-pressure protection safety function of the SRVs. The cycle-specific transient analysis for Unit 3 Cycle 15 operations bounded this discovered condition. Two of the four SRVs (i.e. SRVs S/N 179 and S/N 174) were also Automatic Depressurization System (ADS) valves. The set point drift had no impact on the ADS function of the valves.

Concerning the SRV S/N 193 (non-ADS SRV) failure to re-close during laboratory testing, it was determined that there were no actual safety consequences associated with this condition. As stated previously, there were no plant transients that required automatic SRV operation during Cycle 15 operations. The SRV S/N 193 was installed during the 13th Refueling Outage in 2001. On 9/15/03 (during Cycle 14 operations), this SRV automatically opened on high pressure and properly re-closed in response to a unit scram associated with a loss of grid event (LER 2-03-04) that occurred just before the 14th Refueling Outage. The SRV was not challenged subsequent to the 9/15/03 event. If the SRV had been challenged by a plant transient during Cycle 15 operations and the valve did not re-close, the event would be bounded by the design basis event entitled, 'Inadvertent Opening of a Relief or Safety Valve.' If this event had occurred during Cycle 15 operations, a pressure – temperature transient would have occurred on the RPV.

This event is not considered risk significant.

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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 four SRVs being outside of their allowable as-found set points is due to set point drift. A historical review of SRV as-found test set points indicates that approximately 20% of valves tested over time do not meet the ± 1% Technical Specification set point.

Concerning the failure of SRV S/N 193 to re-close, laboratory failure analysis identified that the main valve (EIIS: V) disc (third stage) had not properly re-seated when closing. Preliminary analysis indicates that a misalignment of the main valve disc spring is the likely cause. This valve was last refurbished in February 2001. Finalization of the causal analysis is in progress.

Corrective Actions

The five SRVs were replaced with different SRVs for the 16th Unit 3 operating cycle.

Additional assessment and appropriate corrective actions concerning SRV refurbishment vendor work practices will be further assessed as part of the Corrective Action Program.

Previous Similar Occurrences

There was one previous LER identified involving the failure of an SRV to re-close following automatic operation. LER 2-03-04 identified an event on Unit 3 that involved a failure of SRV S/N 18 to re-close. A laboratory failure analysis determined that tightly adhered foreign material on the pilot valve disc may have prevented the first stage pilot valve disc from properly re-closing. Corrective actions identified through the Corrective Action Program included the improved decontamination, cleaning, and examination processes. These corrective actions are still in progress and primarily involved the first stage piston work practices. Therefore, these corrective actions would not be expected to have prevented the SRV S/N 193 failure to re-close concern.