



10CFR 50.73

November 22, 2013

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

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

Subject: Licensee Event Report (LER) 3-13-001

Enclosed is a Licensee Event Report concerning a condition prohibited by Technical Specifications involving Safety Relief Valves (SRVs) and a Safety Valve (SV) that did not meet their Technical Specification $\pm 1\%$ set point tolerance when tested in the laboratory. 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,

A handwritten signature in black ink, appearing to read "P. Navin", written over a white background.

Patrick D. Navin
Plant Manager
Peach Bottom Atomic Power Station

PDN/dnd/IR 1567200

Attachment

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

CCN: 13-79

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: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@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.

1. FACILITY NAME Peach Bottom Atomic Power Station (PBAPS) Unit 3	2. DOCKET NUMBER 05000278	3. PAGE 1 OF 5
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4. TITLE
Laboratory Analysis Identifies Safety Relief Valves and Safety Valve Set Point 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
10	01	2013	13	- 001 -	00	11	22	2013	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE N	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
10. POWER LEVEL 0%	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input checked="" type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME PBAPS Unit 3, James M. Armstrong, Regulatory Assurance Manager	TELEPHONE NUMBER (Include Area Code) 717-456-3351
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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
X	SB	RV	T020	Y	X	SB	RV	D345	Y

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

Based on information received from a laboratory performing Main Steam Safety Relief Valve (SRV) / Safety Valve (SV) as-found testing, Site Engineering personnel determined on 10/01/13 that SRV / SV setpoint deficiencies existed with four SRVs and one SV that were in place during the Unit 3 19th operating cycle. The SRVs / SV were determined to have their as-found setpoints outside of the Technical Specification allowable $\pm 1\%$ tolerance. All relief valves outside of their Technical Specification (TS) allowable setpoint range were within the ASME Code allowable $\pm 3\%$ tolerance. The cause of the SRVs / SV being outside of their allowable as-found setpoints is due to setpoint drift. The SRVs / SV have been replaced with refurbished SRVs / SV for the 20th Unit 3 operating cycle. There have been previous LERs identified involving SRVs / SVs exceeding their Technical Specification $\pm 1\%$ setpoint requirement. A license amendment request (LAR) was submitted to the NRC in June 2013 to modify the allowable setpoint from $\pm 1\%$ to $\pm 3\%$, which is consistent with the setpoint typically used in the industry.

There were no actual safety consequences associated with this event.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Peach Bottom Atomic Power Station Unit 3	05000278	YEAR	SEQUENTIAL NUMBER	REV NO.	2 OF 5
		13	- 001	- 00	

NARRATIVE

Unit Conditions Prior to the Event

Unit 3 was defueled to support its 19th Refueling Outage (P3R19) when the event was discovered on 10/01/13 based on as-found testing data from a testing laboratory. The condition was discovered during routine laboratory as-found testing for Safety Relief Valves (SRVs) (EIS: RV) and a Safety Valve (SV)(EIS: RV) removed during the 19th Unit 3 Refueling Outage. There were no other structures, systems or components out of service that contributed to this event.

Description of the Event

In accordance with Technical Specification (TS) Surveillance Requirement 3.4.3.1 and ASME Code requirements, seven Main Steam SRVs and one SV were removed during the 19th Unit 3 Refueling Outage and were sent to an off-site laboratory for as-found testing and routine refurbishment. On 10/01/13, based on laboratory results, Site Engineering personnel determined that setpoint deficiencies existed with four SRVs and one SV that were in place during the 19th Unit 3 operating cycle. The four SRVs and one SV were determined to have their as-found setpoints outside of the TS allowable $\pm 1\%$ tolerance. All relief valves were within the ASME Code allowable $\pm 3\%$ tolerance. The five valves' as-found setpoints were as follows:

Type	ID	S/N	Nominal Setpoint (psig)	Required TS Setpoint (psig)	As-Found Setpoint (psig)	% Outside of TS Nominal Setpoint
SRV	71B	179	1155	1143 - 1167	1121	-2.94%
SRV	71D	85	1135	1124 - 1146	1149	+1.23%
SRV	71G	77	1145	1134 - 1156	1127	-1.57%
SRV	71K	22	1155	1143 - 1167	1137	-1.58%
SV	70A	BL-1103	1260	1247 - 1273	1275	+1.19%

The four SRVs and the one SV were replaced with refurbished SRVs / SV for the 20th Unit 3 operating cycle.

Three of the four SRVs (71B, 71G and 71K) were also Automatic Depressurization System (ADS) valves. The setpoint drift had no impact on the ADS or manual function of the valves.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Peach Bottom Atomic Power Station Unit 3	05000278	YEAR	SEQUENTIAL NUMBER	REV NO.	3 OF 5
		13	- 001	- 00	

NARRATIVE

Cause of the Event

The cause of the SRVs / SV being outside of their allowable as-found setpoints is due to setpoint drift. Current relief valve design characteristics are challenged by a setpoint tolerance of $\pm 1\%$ for the given application over a two year cycle.

Any additional causes of the event identified during valve refurbishment will be evaluated and documented in accordance with the site Corrective Action Program.

Analysis of the Event

There were no actual safety consequences associated with this event.

This report is being submitted pursuant to:

10CFR 50.73(a)(2)(i)(B) – Condition Prohibited by Technical Specifications – Technical Specification Limiting Condition for Operation (LCO) 3.4.3 requires that 11 of the 13 installed SRVs / SVs be operable during operational Modes 1, 2, and 3. Contrary to this requirement, four SRVs and one SV were found with setpoints outside of the Technical Specification setpoint requirements.

10CFR 50.73(a)(2)(vii) – Common Cause Failure of Multiple Trains being Inoperable – Four SRVs and one SV were considered inoperable as a result of exceeding their allowable setpoint range based on laboratory testing. Therefore, this occurrence is considered as a common cause failure of multiple independent trains being inoperable.

The ASME Boiler and Pressure Vessel Code requires that the Reactor Pressure Vessel (EIS: 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. There exists a total of 13 relief valves installed on the four Main Steam (EIS: SB) lines. The eleven installed SRVs exhaust steam through discharge lines to a point below the minimum water level in the Suppression Pool. The two installed SVs discharge steam directly to the Drywell. The SRVs and SVs are located on the four main steam lines 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 the ADS function or for remote-manual operation). The SVs are direct-acting, spring loaded relief valves.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Peach Bottom Atomic Power Station Unit 3	05000278	YEAR	SEQUENTIAL NUMBER	REV NO.	4 OF 5
		13	- 001	- 00	

NARRATIVE

Analysis of the Event, continued

TS Limiting Condition for Operation 3.4.3 requires any 11 of the 13 total SRVs / SVs to be operable. Operability is based on verifying the safety function lift setpoints of the valves to be within +/-1% of the nominal setpoint as specified in TS surveillance requirement 3.4.3.1. The current safety analysis for overpressure protection is based on a lift setpoint 3% above the nominal setpoint. Since there were no as-found results greater than 3% above the nominal setpoint, the P3R19 test results are bounded by the current analysis and there are no impacts on any safety analysis.

Three of the four SRVs (71B, 71G and 71K) were also Automatic Depressurization system (ADS) valves. The ADS reduces the reactor pressure in the event of certain accident conditions. If needed, the ADS function for the SRVs is actuated automatically at lower than the setpoint pressure and is independent of the relief pressure setpoint. As a result, the setpoint drift had no impact on the ADS function of the valves.

During the Unit 3 Cycle 19 operations, there were no plant transients that required automatic or manual SRV / SV operation.

The event is not considered to be risk significant.

Corrective Actions

The four SRVs and the one SV were replaced with refurbished valves for the 20th Unit 3 operating cycle.

A TS change request to revise the SRV / SV set point tolerance to ±3% was submitted to the NRC in June 2013. This change has been recommended by the Boiling Water Reactors Owners Group (BWROG), accepted by the NRC, and implemented by a majority of other BWRs in the US.

Other actions will be pursued, as necessary, to address causes determined in accordance with the site Corrective Action Program.

Previous Similar Occurrences

There were five previous LERs identified involving SRVs / SVs exceeding their Technical Specification ± 1% setpoint requirement. LER 2-12-001 reported six SRVs and one SV having their as-found setpoints in excess of the TS allowable ±1% tolerance. LER 2-10-003 reported two SRVs and one SV having their as-found setpoints in excess of the TS allowable ±1% tolerance. LER 3-07-001 reported two SRVs and one SV having their as-found setpoints in excess of the TS allowable ±1% tolerance. LER 2-06-002 reported one SV having its as-found setpoints in excess of the TS allowable ±1% tolerance. LER 3-05-004 reported a situation

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Peach Bottom Atomic Power Station Unit 3	05000278	YEAR	SEQUENTIAL NUMBER	REV NO.	5 OF 5
		13	- 001	- 00	

NARRATIVE

Previous Similar Occurrences, continued

involving four SRVs having their as-found setpoints in excess of the TS allowable $\pm 1\%$ tolerance.

The previous SRV / SV as-found setpoints were all within the $\pm 3\%$ ASME code allowable setpoint tolerance except for one SV with a setpoint 3.41% high, as documented in LER 2-12-001. Completed corrective actions addressing setpoint drift for these previous events involved replacement of the previous SRVs with different SRVs and therefore, would not have been expected to prevent this event. The corrective action discussed in LER 2-12-001 to revise the TS to change the SRV/SV tolerance from $\pm 1\%$ to $\pm 3\%$ is not yet complete. The TS change request is expected to be approved and implemented in 2014.