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10CFR 50.73

November 15, 2006

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-44
NRC Docket No. 50-277

Subject: Licensee Event Report (LER) 2-06-01

This LER reports a condition involving excessive leakage through the Main Steam Isolation Valves that was discovered during a recent Refueling 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. 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/IR 534622

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 06-14081

IE22

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.

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
Main Steam Isolation Valves Exceeded Their Allowable Leakage Limits

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
9	22	2006	06	- 01 -	0	11	15	2006	FACILITY NAME	05000
									FACILITY NAME	05000

9. OPERATING MODE 5	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFRs: (Check all that apply)			
	<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 checked="" 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 2, James 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	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
E	SB	ISV	A585	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:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On 9/22/06, Engineering Department personnel determined that there were multiple leak rate test failures involving the Main Steam Isolation Valves (MSIVs). This determination was based on local leak rate testing that had been performed over the time period of 9/18/06 to 9/21/06 during the P2R16 Refueling Outage. Four of the eight MSIVs were found to be leaking in excess of their allowable leakage limits including both the inboard and the outboard MSIVs for the D Main Steam Line. This condition resulted in a degraded plant safety barrier, a condition prohibited by Technical Specifications and a condition that resulted in multiple trains being inoperable in a safety system. The cause of the leakage through the MSIVs was primarily due to the MSIV main poppet not concentrically seating on the in-body MSIV main seating surfaces. The underlying causes and corrective actions to resolve the underlying causes of this event are being finalized in accordance with the Corrective Action Program. The MSIVs were repaired and returned to an operable status. The as-let leakage rates were well below the Technical Specification allowable limits.

This event was determined to be not significant from a risk perspective.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Peach Bottom Atomic Power Station, Unit 2	05000277	06	01	00	2 OF 4

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

Unit Conditions at the Time of Discovery

Unit 2 was shutdown and in Mode 5 when the event was discovered. Unit 2 had been recently shutdown on 9/15/06 for the P2R16 Refueling Outage. Prior to the shutdown, Unit 2 had been operating for the previous 367 days. There were no other structures, systems or components out of service that contributed to this event.

Description of the Event

On 9/22/06, Engineering Department personnel determined that there were multiple leak rate test failures involving the Main Steam Isolation Valves (MSIVs)(EIIIS:ISV). This determination was based on local leak rate testing that had been performed over the time period of 9/18/06 to 9/21/06 during the P2R16 Refueling Outage. Unit 2 has four Main Steam Lines with each line having one inboard and one outboard MSIV. Four of eight MSIVs were found to be leaking in excess of their allowable leakage limits including both the inboard and the outboard MSIVs for the D Main Steam (EIIIS: SB) Line. The following MSIVs did not pass their local leak rate tests:

MSIV	Inboard / Outboard	Steam Line	Technical Specification Leak Rate Limit	As-found Leak Rate
86A	Outboard	A	≤ 11.5 scfh	47.9 scfh*
86C	Outboard	C	≤ 11.5 scfh	12.3 scfh
80D	Inboard	D	≤ 11.5 scfh	17.2 scfh
86D	Outboard	D	≤ 11.5 scfh	33.6 scfh

* This value does not include high as-found leakage through the valve packing.

At the time of discovery, the MSIVs were not required to be operable. The MSIVs were repaired during the P2R16 refueling outage and restored to within allowable leak rate values. The valves were returned to an operable status in support of the Unit startup on 10/6/06 for Cycle 17 operations.

This report is being submitted pursuant to the following reporting requirements:

10CFR 50.73(a)(2)(i)(B) – Condition Prohibited by Technical Specifications – Because there were multiple leak test failures identified with the MSIVs, there is an indication that the discrepancies occurred over a period of time. Therefore, in accordance with NUREG-1022, this event is considered as reportable as a condition prohibited by Technical Specifications.

10CFR 50.73(a)(2)(ii)(A) – Principal Safety Barrier Degraded – Because the 80D and 86D MSIVs both had leakage that exceeded Technical Specification allowable leakage limits, the D MSIV line had a minimum pathway leakage that exceeded 11.5 scfh. Therefore, the D Main Steam Line isolation barrier was degraded.

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

Description of the Event, continued

10CFR 50.73(a)(2)(vii) – Single Cause of Independent Trains Being Inoperable - Because there were multiple leak test failures identified with the MSIVs, there is a condition where a single cause resulted in multiple independent trains of a safety system to be inoperable.

Analysis of the Event

Unit 2 has four Main Steam Lines with each line having one inboard and one outboard MSIV. The safety objective of the MSIVs is to close automatically to:

1. Prevent damage to the fuel barrier by limiting the loss of reactor coolant in case of a major leak from the steam piping outside the primary containment.
2. Limit the release of radioactive materials by closing the nuclear system process barrier in case of gross release of radioactive materials from the reactor fuel to the reactor cooling water and steam.
3. Limit the release of radioactive materials by closing the primary containment barrier in case of a major leak from the nuclear system inside the primary containment.

The redundant MSIVs for the A, and C Main Steam Lines and both MSIVs for the B Main Steam Line met their as-found leakage limits and were therefore, capable of isolating the associated Main Steam Lines to limit the release of radioactive materials. Since both MSIVs associated with the D Main Steam Line exceeded leakage limits, the Technical Specification limit of ≤ 11.5 scfh could have been exceeded for the D Main Steam Line during a design basis event. The minimum pathway leakage rate for the D Main Steam Line would be the leak rate through the 80D MSIV (17.2 scfh).

The safety basis for the assumed MSIV leak rate is discussed in the bases for Technical Specification 3.6.1.3, Primary Containment Isolation Valves (PCIVs). Technical Specification 3.6.1.3 requires that leakage through each MSIV must be ≤ 11.5 scfh when tested at ≥ 25 psig. As discussed in the Technical Specification 3.6.1.3 Bases, the Plant Safety Analyses (UFSAR Section 14) assume that all four Main Steam Lines leak at the Technical Specification limit of ≤ 11.5 scfh for the design basis accident – loss of coolant analysis. This would result in a total assumed leakage of 46.0 scfh. As a result of stroke testing of the MSIVs during P2R16, the MSIVs would have closed during a design basis event. If the minimum pathway leakage for each Main Steam Line is added together, then the total leakage through the MSIVs would not have exceeded the total of 46.0 scfh assumed in the design basis event analyses. Therefore, the overall safety objective of isolation of the main steam lines would have been met.

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

Analysis of the Event, continued

The leakage deficiencies of the MSIVs did not affect their ability to close within their required closure time. Other design basis events assumptions involving closure times were not affected.

In accordance with NUREG-1765, Basis Document for large early Release Frequency (LERF) Significance Determination Process (SDP), excessive leakage of MSIVs that would be significant for LERF consideration is defined as leak rates greater than 10,000 scfh. The total as-found minimum pathway leakage was substantially less than 10,000 scfh. Therefore, this event was determined to be not significant from a risk perspective.

Cause of the Event

The proximate cause of the leakage through the MSIVs was due to the MSIV main poppets not concentrically seating on the in-body MSIV main seating surfaces. In addition, the 86A MSIV had as-found packing leakage of sufficient magnitude that prevented pressurizing the test volume to the target value.

A root cause investigation is being performed for this occurrence. This investigation has identified contributing factors that, in combination, resulted in the multiple MSIV leakage deficiencies. The contributing factors include the outboard MSIVs not being modified with the enhanced 'nose-guided' poppets and not maintaining precise in-body design tolerances. The root cause investigation will be finalized in accordance with the Corrective Action Program.

Corrective Actions

The MSIVs were repaired and returned to an operable status. The as-left leakage rates were well below the Technical Specification allowable limits.

Additional corrective actions to resolve the causes identified by the root cause investigation including extent of condition evaluations are being evaluated in accordance with the Corrective Action Program.

Previous Similar Occurrences

There were no previous similar events identified involving multiple, concurrent MSIV leakages that exceeded Technical Specification allowable values.