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10CFR 50.73

May 23, 2003

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

Peach Bottom Atomic Power Station, Unit 2
Facility Operating License No. DPR-44
NRC Docket No. 50-277

Subject: Licensee Event Report (LER) 2-03-01

This LER reports an automatic scram of Unit 2 and associated Primary Containment Isolations as a result of a Main Steam Isolation Valve going closed due to a failed instrument air line. 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/CR153675

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
A. C. McMurtray, US NRC, Senior Resident Inspector

CCN 03-14041

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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, NEOF-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)

FACILITY NAME (1) Peach Bottom Atomic Power Station, Unit 2	DOCKET NUMBER (2) 05000 277	PAGE (3) 1 OF 4
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TITLE (4)
Outboard Main Steam Isolation Valve Instrument Air Line Failure Results in Scram on Reactor High Pressure

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
4	12	03	03	001	00	05	23	03	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 1	POWER LEVEL (10) 100	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)								
		20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)					
		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)	X 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)					
		20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A					
		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)	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)						

LICENSEE CONTACT FOR THIS LER (12)

NAME Steven C. Beck - Regulatory Assurance	TELEPHONE NUMBER (Include Area Code) (717) 456-3243
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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
B	JM	TBG	N/A	Y	B	IG	MON	G080	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)

At 1847 hours on 4/12/03, Unit 2 scrambled as a result of a high reactor pressure condition. The high pressure condition resulted from the closure of the 'D' Outboard Main Steam Isolation Valve (MSIV). The MSIV closed as a result of a failed instrument air line that provides control air to the valve control manifold. Primary Containment Isolation System (PCIS) Group II and III isolations were received, as expected, as a result of reaching the Level 3 reactor water level set point. There were no significant equipment issues that adversely affected Operations personnel response to the event. The plant was maintained in the hot shutdown condition (Mode 3) until the mode switch was placed in the Startup position (Mode 2) on 4/13/03 at 1545 hours. Analysis of this event determined that the event was not risk significant. The cause of the broken air line is primarily due to less than adequate supporting of the instrument air line that allowed the instrument air line to experience a fatigue failure. The instrument air line was replaced and additional supports were added to the line. Supports for other similar instrument lines on other Outboard MSIVs were upgraded. Similar instrument lines on Unit 3 Outboard MSIVs are planned to be upgraded. Other pneumatic lines will be inspected for enhancements. There were no previous similar events.

LICENSEE EVENT REPORT (LER)

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Peach Bottom Atomic Power Station, Unit 2	05000277	03	001	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. At the time of the event, there were no activities in progress related to Main Steam Isolation Valves (MSIVs) (EIIS: ISV). There were no structures, systems or components out of service that contributed to this event.

Description of the Event

At 1847 hours on 4/12/03, Unit 2 scrambled as a result of a high reactor pressure condition. The high pressure condition resulted from the closure of the 'D' Outboard Main Steam Isolation Valve (MSIV). The MSIV closed as a result of a failed instrument air line (EIIS: TBG) that provides a pneumatic supply to the valve control manifold (EIIS: PSX).

As a result of the high pressure condition, the Recirculation Pumps tripped and the Alternate Rod Insertion (ARI) system actuated. The mode switch was promptly moved to the 'Shutdown' position and plant cool down was commenced using the normal heat sink (Bypass valves to the condenser). As expected, PCIS Group II and III isolations were received, as a result of reaching the Level 3 reactor water level set point subsequent to the scram. All isolation valves operated as designed.

The PCIS Group II / III isolations were reset by approximately 1900 hours. NRC prompt notifications were completed at approximately 2055 hours.

A half scram ('A' Channel) signal was generated on 4/13/03 at 0039 hours due to erratic oscillations in the '2A' Wide Range Neutron Monitor (EIIS: MON). The monitor was bypassed and the half-scram signal was reset.

The plant was maintained in the hot shutdown condition (Mode 3) until the mode switch was placed in the Startup position (Mode 2) on 4/13/03 at 1545 hours.

This report is being submitted pursuant to 10CFR50.73 (a)(2)(iv)(A) due to valid actuations of the Reactor Protection System and the Primary Containment Isolation System.

NRC FORM 366AU.S. NUCLEAR REGULATORY COMMISSION
(1-2001)

LICENSEE EVENT REPORT (LER)

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

Analysis of the Event

There were no actual safety consequences as a result of this event. All control rods inserted on the reactor scram signal. The Group II / III PCIS isolations resulted in the primary containment isolation safety function being met. ARI and the Recirculation Pump Trip functions operated due to a high reactor pressure condition. This is a conservative plant action that provides backup actions for the Reactor Protection System.

Although the 'D' Outboard MSIV closed due to the failed instrument air line, there were not any actual plant conditions that required the MSIVs to close. Post-scram cooling was accomplished using the Main Steam Bypass Valves to the Condenser.

A Conditional Core Damage Probability (CCDP) study was performed. This analysis determined that core damage could occur once in approximately every one million events. Therefore, this event did not have any risk significance. This event is bounded by the design basis event entitled, 'Isolation of One Main Steam Line'. During this event, the plant safety systems responded as necessary. This event did not involve operations that exceeded the design basis. The single MSIV closure did cause a rise in neutron flux, however, the flux rise did not reach the bounding Hi Flux Scram set point as described in the Updated Final safety Analysis Report (UFSAR). The SCRAM on high reactor pressure (which reached approximately 1080 psig) rather than on high neutron flux was evaluated and is considered appropriate for the given transient conditions. This was based on lower void coefficients in the currently licensed fuel and a slower pressure transient than the bounding MSIV failure analyses in the UFSAR.

The MSIV accumulator pneumatic supply is safety related for both the inboard and outboard MSIVs. The MSIV solenoid valve control manifold pneumatic supply to the inboard MSIVs is required to be safety related since they are not isolated from the safety related pneumatic supply to the accumulator. The outboard MSIV pneumatic supply to the control manifolds are not fed from within the safety related pneumatic supply boundary and therefore, are not considered as safety related.

Cause of the Event

The cause of the Unit 2 scram was due to a failed instrument air line that supplies the solenoid valve control manifold for the 'D' Outboard MSIV. It was observed that the instrument line failed at the ferrule area of the tubing fitting at the solenoid valve control manifold. The failed 'D' Outboard MSIV instrument air line was sent to a failure analysis laboratory to determine the exact cause of the failure. It was determined that high cycle, vibration induced fatigue was the cause of the instrument air line failure.

Further engineering review determined that the 'D' Outboard MSIV instrument tubing was vulnerable to fatigue failures due to the method of supporting the instrument air lines. The instrument line that failed is a 3/8" diameter Type 304 stainless steel tubing utilizing a tubing fitting for connection to the solenoid valve control manifold. The instrument air lines that supply the solenoid valve control manifold are not safety related and non-seismic. The tubing that failed contained an expansion loop and the unsupported tubing length was approximately 100".

NRC FORM 366AU.S. NUCLEAR REGULATORY COMMISSION
(1-2001)

LICENSEE EVENT REPORT (LER)

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

Cause of the Event, (continued)

The spurious half-scrum generated by the '2A' Wide Range Neutron Monitor (General Electric, Model 304A3712G005) is believed to be due to electromagnetic interference and is being further evaluated through the corrective action program.

Corrective Actions

The 'D' Outboard MSIV instrument air tubing was replaced. Similar tubing on the other three Outboard MSIVs was also replaced. An engineering evaluation was performed on the Outboard MSIV instrument tubing supports. This resulted in several additional tubing supports being added to the four Outboard MSIV instrument air lines. Similar upgrades are planned for the Unit 3 Outboard MSIVs when plant conditions permit maintenance.

A walk down of Unit 2 was performed to assess the adequacy of pneumatic control lines. Appropriate minor repairs were made to some pneumatic lines. Additional Unit 3 walk downs will be performed when plant conditions permit to assess other instrument air lines for degradation and tubing support adequacy.

Engineering performed a review of the Unit 2 and Unit 3 Inboard MSIV instrument nitrogen supply lines. It was concluded that these lines are more robust than the Outboard lines and do not require additional supports. The Inboard MSIV nitrogen supply lines are safety related.

Appropriate additional grounding of the '2A' Wide Range Neutron Monitor is being considered in accordance with the corrective action program.

Previous Similar Occurrences

There were no previous events identified involving a scram due to MSIV closure caused by a failed instrument air line.