Exelon Nuclear
Peach Bottom Atomic Power Station
1848 Lay Road
Delta, PA 17314-9032

Telephone 717.456.7014
www.exeloncorp.com

Exelon Nuclear

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Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Docket No. 50-278
SUBJECT: Licensee Event Report, Peach Bottom Atomic Power Station Unit 3

This LER reports a brief degradation of the Low Pressure Emergency Core Cooling safety function. The LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(ii), (a)(2)(v) and (a)(2)(vii). 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.

Reference:	Docket No.	50-278
Report Number:	3-01-002	
Revision Number:	00	
Event Date:	11/16/01	
Report Date:	01/11/02	

Facility: Peach Bottom Atomic Power Station Unit 3
1848 Lay Road, Delta, PA 17314-9032

Sincerely,

Gordon L. Johnston, Plant Manager

GLJ/djf/CR 83213

enclosure

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
A. F. Kirby III, DelMarVa Power

CCN 02-14003

IE22

Rec'd 02/12/02

NRC FORM 366
(1-2001)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2001

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)

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TITLE (4)

Less than Adequate Test Review results in Low Pressure Emergency Core Cooling Safety Function Degradation

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
11	16	01	01	- 0 0 2 -	00	01	11	02	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)	X	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)		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)	X	50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)		50.73(a)(2)(i)(B)	X	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	TELEPHONE NUMBER (Include Area Code)
David J. Foss - Regulatory Assurance	(717) 456-4311

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

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

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

On 11/16/01, the Low Pressure Emergency Core Cooling safety function was degraded for approximately 2 hours. This degradation occurred as a result of the combination of having the 'A' loop of Low Pressure Coolant Injection (LPCI) out of service due to an inoperable isolation valve and the concurrent inoperability of other ECCS equipment during the performance of a Logic System Functional Test (LSFT). This condition was discovered on 11/16/01, at approximately 1300 hours, when the Control Room Supervisor (CRS) identified that the plant had previously entered and exited a Technical Specification Limiting Condition for Operation (LCO) action 3.0.3. This was identified as a result of an inquiry by the Unit 3 licensed reactor operator when he was attempting to perform an independent verification required at the conclusion of the LSFT. The cause of this event was inappropriate review of the LSFT test procedure by licensed individuals. A contributing cause to this event was less than adequate turnover between the nightshift and dayshift operating crew members. An evaluation was initiated to analyze licensed operator human performance behaviors to identify appropriate interventions required to resolve the human performance issues. There were no previous similar events. This event was evaluated to not be risk significant.

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

Unit Conditions Prior to the Event

Unit 3 was in Mode 1 and operating at 100% rated thermal power when the event occurred. The Residual Heat Removal (RHR) 'A' Low Pressure Coolant Injection (LPCI) loop (EIIS: BO) was inoperable due to the loop injection valve 25A (EIIS: ISV) being closed and de-energized to satisfy a Primary Containment Isolation Valve (EIIS: JM) Technical Specification required action.

Description of the Event

On 11/16/01, the Low Pressure Emergency Core Cooling safety function was briefly degraded for the following three approximate periods of time:

- 0947-1015 hours - 'A' LPCI loop & 'B' LPCI pump inoperable
- 1016-1046 hours - 'A' LPCI loop & 'D' LPCI pump inoperable
- 1146-1225 hours - 'A' LPCI loop & 'A' Core Spray loop (EIIS: BM) inoperable

This degradation occurred as a result of the combination of having the 'A' loop of LPCI out of service due to an inoperable isolation valve and the concurrent inoperability of other ECCS equipment during the performance of a Logic System Functional Test (LSFT) for the 3A RHR loop. The LSFT for the 3A RHR loop also includes elements that impact the 'A' Core Spray and 'A' High Pressure Service Water (HPSW) subsystems due to logic interconnections.

This condition was discovered on 11/16/01, at approximately 1300 hours, when the Control Room Supervisor (CRS) identified that the plant had entered a Technical Specification Limiting Condition for Operation (LCO) action 3.0.3. This was identified as a result of an inquiry by the Unit 3 licensed reactor operator when he was attempting to perform an independent verification required at the conclusion of the LSFT. This independent verification step was intended to ensure that both loops of RHR were set up for automatic LPCI injection. When it was noted that the 'A' loop of LPCI was out of service due to the inoperable isolation valve, the CRS immediately recognized that the plant had previously entered and exited LCO 3.0.3 statements during performance of the LSFT. The LSFT was being performed by Instrumentation & Control technicians in close contact with control room personnel.

The 'A' LPCI loop had previously been declared inoperable on 11/15/01, at approximately 1745, when the 'A' LPCI injection valve 25A was closed and de-energized to isolate the 'A' loop primary containment penetration. This was necessary due to the 'A' loop inboard injection testable check valve equalizer valve (EIIS: LOV) being declared inoperable for closing. The equalizer valve 163A had been stroked open earlier during the LSFT, and subsequently the valve did not indicate as closed when required. The 163A valve is located in the inerted primary containment.

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

Description of the Event, cont.

This report is being submitted pursuant to 10CFR50.73 (a)(2)(ii),(a)(2)(v) and (a)(2)(vii) due to a condition that could have prevented the fulfillment of the safety function / inoperability of low pressure cooling systems. At the time of discovery of this event, the reported condition had already been exited. Therefore, a prompt notification to the NRC was not required.

Analysis of the Event

There were no actual safety consequences as a result of this event.

For smaller design basis reactor coolant system leak events, adequate core cooling would be assured. The high pressure coolant systems were unaffected by this event and adequate low pressure cooling subsystems were operable.

Containment Cooling and Spray features of RHR were adequate for design events.

For a design event for loss of coolant on the discharge side of the recirculation pump, there was adequate low pressure cooling subsystem available to mitigate the event.

In the event of a worst case design event on the suction side of the recirculation pump, there existed a short period of time in which the design basis minimum low pressure core cooling was not available for automatic initiation (i.e. less than two total hours). Had this design basis event occurred during these two hours and no credit was taken for manual actions to restore LPCI/Core Spray to operability, 10CFR 50 Appendix K ECCS acceptance criteria for core cooling could have been exceeded. However, based on risk analyses performed for the short duration of the event, there were no significant risk concerns. The analysis determined that the additional probability of core damage in the worst case plant configuration would be less than one occurrence for every 100 million years (i.e. 6E-9). For this analysis, in addition to the low pressure emergency cooling equipment being considered inoperable, it was conservatively assumed that the 'B' loop RHR pump (i.e. the 'B' or the 'D' depending on the time frame) could not be returned to service for containment cooling. Also, the 'A' Containment Cooling / Spray subsystem and the 'A' High Pressure Service Water subsystem were conservatively considered to be unavailable due to their status during the performance of the LSFT. It should be noted that relatively simple actions could have been taken to abort the test and return the above equipment to an operable status in a short period of time.

Cause of the Event

The cause of this event was inappropriate review of the LSFT test procedure by the day shift work control supervisor (WCS) and CRS (both are licensed individuals). The LSFT test procedure delineated equipment inoperabilities which would be created by the performance of various portions of the test. The test procedure also noted Technical Specification sections to consider when entering different portions of the test. This procedural direction, if followed, would have resulted in the determination that the LSFT should not continue unless the 'A' LPCI loop was returned to operability.

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

Cause of the Event, cont.

A contributing cause to this event was less than adequate turnover between the nightshift and dayshift operating crew members. On 11/16/01, the nightshift WCS and CRS had revised the 'A' LPCI injection valve 25A equipment clearance to allow for re-energization of the 25A valve under administrative control to allow the LSFT to continue. This action would restore the 'A' LPCI loop to an operable status and was permitted in accordance with Technical Specifications. The valve was re-energized and the LSFT continued on nightshift. On 11/16/01, at approximately 0625 hours, the 25A was once again closed and de-energized to support shift turnover to dayshift on 11/16/01. This resulted in the 'A' LPCI loop being once again in an inoperable condition. During the turnover to dayshift, the dayshift CRS understood that the 'A' LPCI loop was inoperable but he believed that testing was evaluated and the LSFT could continue. He did not understand that continuing the test was acceptable only if the revised clearance to administratively re-energize the 25A valve was implemented which would result in the 'A' LPCI loop being brought back to an operable status.

Corrective Action Completed

Expectations were reinforced for:

- Licensed operators to review procedure impacts to equipment operability whenever a test is turned over.
- Informing the CRS whenever equipment operability status changes during the performance of testing, including testing being performed by other work groups.

Individuals involved with this event were informed of the significance of this event and received appropriate consequences.

Corrective Actions Planned

An evaluation was initiated to address the licensed operator human performance issues associated with this event.

The licensed operator individual turnover process will be evaluated for improvements.

Previous Similar Occurrences

There were no previous events identified that involved degradation of low pressure emergency cooling caused by less than adequate human performance during testing activities.