PECO 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 an invalid Engineered Safety Feature actuation of the suppression chamber vent and purge valves due to a spurious signal caused by a lightning strike. The LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv).

Reference: Docket No. 50-278
Report Number: 3-00-002
Revision Number: 00
Event Date: 12/17/00
Report Date: 1/12/01

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

Sincerely,

for GLJ

Gordon L. Johnston, Plant Manager

GLJ/djf

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 01-14007

IE22

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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TITLE (4)
Primary Containment Isolation when Suppression Chamber Purge and Vent Valves closed due to a Spurious Invalid Signal Generated by a lightning strike

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	Sequential Number	Revision Number	MONTH	DAY	YEAR	Facility Name	Docket Number
12	17	2000	2000	002	00	01	12	2001	Facility Name	Docket Number

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	18%		20.2201(B)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)	X	50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 336A
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (include area code)
Andrew Winter	717-456-3598

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
C	IL	CPU	S637	Y						

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 12/17/00, at 0540 hours, an isolation of the outboard vent and purge valves for the primary containment suppression chamber occurred when the communications board for the 'B' radiation monitor for the plant main off gas stack failed as a result of a lightning strike. The failure of the communications board resulted in the generation of a spurious invalid signal that resulted in the isolation. Repairs were promptly initiated to replace the communication board for the 'B' radiation monitor. Repairs and subsequent testing were complete on 12/17/00 at approximately 1600 hours. There were no actual safety consequences due to this event. The 'A' radiation monitor was not damaged by the lightning storm. At the time of the spurious isolation, there were no radiological concerns or abnormal conditions that actually required an isolation.

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TEXT *(If more space is required, use additional copies of NRC form 336A)* **(17)**

Requirements of the Report

This LER is being submitted pursuant to the requirements of 10 CFR 50.73 (a)(2)(iv) due to a primary containment (EIIS:NH) isolation which occurred during suppression chamber purge and vent operations. This engineered safety feature (ESF) actuation was due to a spurious invalid non-ESF signal generated as a result of the loss of the main stack 'B' radiation monitor communications board (EIIS:CPU) due to a lightning strike.

Unit Conditions at Time of Event

Unit 3 was in Mode 1 (RUN) at approximately 18% reactor power at the time of occurrence of the event. Purging and venting of the primary containment suppression chamber (EIIS:BF) was in progress in preparation for personnel entry into the Unit 3 primary containment drywell. The Standby Gas Treatment System (SBGT) was in service to support purge/vent operations on Unit 3. There were no systems, structures, or components which were inoperable that contributed to this event.

Description of the Event

On 12/17/00, at 0540 hours, an isolation of the outboard vent and purge valves (EIIS:ISV) for the primary containment suppression chamber occurred when the communications board for the 'B' radiation monitor (Sorrento Electronics, Model RM-2000) for the main off gas stack failed as a result of a lightning strike. The failure of the communications board resulted in the generation of a spurious invalid non-ESF signal that resulted in the isolation.

In addition to the primary containment isolation, the loss of the communications board resulted in the temporary loss of main off gas stack radiation indication in the main control room required by the Technical Requirements Manual and the Off-Site Dose Calculation Manual (ODCM). Appropriate compensatory measures were initiated in accordance with ODCM requirements.

Repairs were promptly initiated to replace the communication board for the 'B' radiation monitor. Repairs and subsequent testing were complete on 12/17/00 at approximately 1600 hours resulting in the full restoration of radiation monitoring capability at the main off gas stack.

This isolation was reported to the NRC via the prompt reporting system on 12/17/00 at 0635 hours.

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Cause of the Event

The cause of the event was the failure of the communications board for the plant main off gas stack 'B' radiation monitor. The board failed due to an electrical surge induced as a result of a nearby lightning strike. The radiation monitors and associated communication boards are located in a building next to the base of the plant main off-gas stack. This building is at an elevated remote location with respect to the power block. The elevated remote location results in a higher susceptibility to damage due to lightning strikes.

Analysis of the Event

There were no actual safety consequences due to this event. At the time of the spurious invalid isolation, there were no radiological concerns or abnormal conditions that actually required an isolation.

The isolation of the outboard suppression chamber purge and vent valves due to the failure of the 'B' radiation monitor communication board reflects the conservative fail safe nature of the main off gas stack radiation monitors. The redundant 'A' radiation monitor was not damaged by the lightning strike and, therefore, did not result in an isolation of the inboard suppression chamber purge and vent valves.

The isolation feature of the purge and vent valves on main off gas stack high radiation is a conservative design feature that is not assumed in any accident or transient analysis. The isolation feature to close the purge and vent valves provides another level of assurance that the consequences of design basis events will be mitigated.

Had a design basis event occurred during the time of the isolation, the purge and vent valves were already in the closed position and therefore were in a safe condition. During normal operations, the purge and vent valves are normally closed and are only opened for brief periods of time to perform purge/vent operations.

The radiation monitoring feature for the main off gas stack required by the Technical Requirements Manual (TRM) for design event radiation monitoring and the ODCM for normal operations was briefly lost. All TRM and ODCM action requirements were appropriately initiated. Appropriate manual sampling was performed as required. In the unlikely event that a design basis event would have occurred during the time of the isolation, radiation monitoring was available locally at the main stack.

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Because the 'B' radiation monitor communication board failed in the safe condition by initiating the isolation and the equipment was returned to service within 10 ½ hours, there is no risk associated with this event.

Corrective Actions

Repairs were promptly initiated to replace the communication board for the 'B' radiation monitor. Repairs and subsequent testing were complete on 12/17/00 at approximately 1600 hours thereby restoring the equipment to an operable status.

Engineering reviews and hardware improvements performed over the past several years have resulted in higher reliability of station equipment including equipment at the main off gas stack with regards to lightning affects.

This issue has been entered into the station corrective action process for consideration of additional actions as appropriate.

Previous Events

There were no previous events identified involving the isolation of containment purge / vent valves due to loss of a main off gas stack radiation monitor as a result of the lightning strike.