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U. S. Nuclear Regulatory Commission
Washington, DC 20555

Docket Nos. 50-277 & 278

SUBJECT: Licensee Event Report, Peach Bottom Atomic Power Station
Unit 2 & 3

This LER concerns Engineered Safety Feature actuations due to the loss of one offsite power source.

Reference:	Docket No. 50-277 & 278
Report Number:	2-96-003
Revision Number:	00
Discovery Date:	2/28/96
Report Date:	3/28/96
Facility:	Peach Bottom Atomic Power Station 1848 Lay Road, Delta, PA 17314

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv).

Sincerely,

GDEWJHG:jhg

enclosure

cc: B. Gorman, Public Service Electric & Gas
R. R. Janati, Commonwealth of Pennsylvania
INPO Records Center
T. T. Martin, US NRC, Administrator, Region I
R. I. McLean, State of Maryland
W. L. Schmidt, US NRC, Senior Resident Inspector
A. F. Kirby III, DelMarVa Power
H. C. Schwemm, VP - Atlantic Electric

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Handwritten initials/signature

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Peach Bottom Atomic Power Station Unit 2

DOCKET NUMBER (2)

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PAGE (3)

TITLE (4)

Engineered Safety Feature Actuations due to the Loss of One Off-Site Power Source

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 NAMES	DOCKET NUMBER(S)
0	2	8	9	6	0	0	3	0	0	0
0	2	8	9	6	0	0	3	0	0	0
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)							
1			20.402(b)		20.405(c)		X		50.73(a)(2)(iv)	
POWER LEVEL (10)			20.405(a)(1)(i)		50.36(c)(1)				73.71(b)	
1 0 0			20.405(a)(1)(ii)		50.36(c)(2)				73.71(c)	
			20.405(a)(1)(iii)		50.73(a)(2)(i)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
			20.405(a)(1)(iv)		50.73(a)(2)(ii)				50.73(a)(2)(vii)(A)	
			20.405(a)(1)(v)		50.73(a)(2)(iii)				50.73(a)(2)(vii)(B)	
					50.73(a)(2)(iv)				50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

George Lengyel

TELEPHONE NUMBER

AREA CODE

7 1 7 4 5 6 - 7 0 1 4

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On 02/28/96, an offsite electrical power source (343SU) was lost unexpectedly. The four 4KV busses fed from this source automatically fast transferred to another qualified offsite power source (i.e. 2SU) per system design. Transfer of the Startup circuits resulted in a Primary Containment Isolation System (PCIS) Group II half isolation on both units. The isolations occurred due to the momentary de-energization of several electrical distribution panels on each unit during the 4 KV fast transfer. The immediate cause of the loss of offsite source 343SU was an actuation of the differential current protection relays (LCB relays). It has been determined that the LCB relays actuated as a result of a temporary fault introduced by windblown foreign material coming in contact with the 343SU aerial transmission lines. The 343SU offsite power source was removed from service and placed in standby pending an evaluation to determine if the 343SU bus protection system can be modified to reduce the probability of a similar occurrence in the future. There were no previous similar events identified.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Peach Bottom Atomic Power Station Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 7 7	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9 6	— 0 0 3	— 0 0	0 2	OF	0 4

TEXT (If more space is required, use additional NRC Form 366A's) (17)

Requirements of the Report

This report is submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(iv) because of unplanned Engineered Safety Feature Actuations.

Unit Conditions at Time of Discovery

Units 2 and 3 were in Mode 1 (RUN) at approximately 100% of thermal reactor power.

Description of the Event

On 02/28/96 at 1148 hours, an offsite electrical power source (343SU) was lost unexpectedly. The four 4KV busses fed from this source automatically fast transferred to another qualified offsite power source (i.e. 2SU) per system design. Transfer of the Startup circuits resulted in a Primary Containment Isolation System (EIIIS:JM)(PCIS) Group I half isolation on both units. These half isolations caused the Drywell Sump Pump, Instrument Nitrogen, and Transverse Incore Probe (TIP) system isolation valves (EIIIS:JM) to close. In addition, the Reactor Water Cleanup system (EIIIS:CE) also isolated. The isolations occurred due to the momentary de-energization of several electrical distribution panels on each unit during the 4 KV fast transfer. These isolations are expected when a 4 KV fast transfer occurs. Appropriate actions were immediately taken to stabilize the units and the NRC was notified of the event. Following the event, the PCIS Group II isolation logics were reset and affected systems were restored to their normal configurations.

Cause of the Event

The immediate cause of the loss of offsite source 343SU was an actuation of the differential current protection relays (LCB relays). Following the event, a thorough investigation was initiated to determine why the LCB relays actuated. This investigation included electrical testing of all equipment associated with the SU343 offsite source including the transmission cabling. No equipment anomalies were found. In addition, the LCB relays were sent to the manufacturer for complete testing. The relays were found to be in proper operating condition.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Based on the results of the above investigations, it has been determined that the LCB relays actuated due to an actual fault on the 343SU aerial power line. Because a portion of this line consists of aerial transmission lines, it is postulated that a temporary fault was introduced by windblown foreign material coming in contact with the transmission lines. At the time of the event, very high winds were being experienced on site.

An additional factor that supports this hypothesis is the high speed and sensitivity at which the LCB relays actuate. Although further evaluations are in progress, it is suspected that the speed and sensitivity of the relays may not be ideal for an aerial application.

Analysis of the Event

No actual safety consequences occurred as a result of this event. All automatic PCIS isolations functioned as designed.

During normal operating conditions, the Units 2 and 3 4KV emergency buses (4 buses per unit) are powered via two startup power buses. These buses are powered by two of three available offsite sources, 2SU, 3SU and 343SU. In the event of a loss of one of the two startup power buses, the attached loads automatically transfer to the other bus via a normal dead bus transfer. Normal plant lineup has the 343SU startup sources powering one startup source and the 2SU powering the other.

At the time of this event, the 2SU offsite source was operating in the manual load adjustment mode to support testing of the E4 Emergency Diesel Generator. When 343SU tripped, the loads being carried by the associated startup bus were successfully transferred to other startup bus as designed. However, had this startup bus not been able to handle this additional load due to the ongoing testing, the Standby Emergency Diesel Generators were operable and available to provide backup electrical power to the emergency 4KV buses and safely control the plant.

The design of 343SU differs from the other two offsite sources in that it uses a section of overhead transmission lines as opposed to underground or conduit encased cabling. Because of this, the other two offsite sources are not susceptible to the type of fault which occurred on the 343SU source during this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)

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Peach Bottom Atomic Power Station
Unit 2

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Corrective Actions

The PCIS Group II isolation logics were reset and affected systems were restored to their normal configurations.

343SU was removed from service and placed in standby pending an evaluation to determine if the 343SU bus protection system can be modified to reduce the probability of a similar occurrence in the future.

Previous Similar Events

There were no previous similar events identified where an startup power line was lost due to an aerial fault.