

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Peach Bottom Atomic Power Station - Unit 3  
DOCKET NUMBER (2): 050000278  
PAGE (3): 1 OF 05

TITLE (4): Actuation of Primary Containment Isolation System During Switching of a 4kV Emergency Bus Feed due to Lack of Procedural Guidance

| EVENT DATE (5)   |     |      | LER NUMBER (6)    |                 |       | REPORT DATE (7) |      |                | OTHER FACILITIES INVOLVED (8) |  |                   |
|--|-----|------|-------------------|-----------------|-------|-----------------|------|----------------|-------------------------------|--|-------------------|
| MONTH  | DAY | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY             | YEAR | FACILITY NAMES |                               |  | DOCKET NUMBER (S) |
| 04   | 08  | 88   | 001               | 01              | 05    | 06              | 88   |                |                               |  | 050000            |
| THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11): |     |      |                   |                 |       |                 |      |                |                               |  |                   |

|                         |                   |                  |   |  |
|-------------------------|-------------------|------------------|---|--|
| OPERATING MODE (9): N   | 20.402(a)         | 20.406(e)        | <input checked="" type="checkbox"/> 80.73(a)(2)(iv) | 73.71(b)   |
| POWER LEVEL (10): 0.0 p | 20.408(a)(1)(i)   | 80.38(a)(1)      | 80.73(a)(2)(v)                                      | 73.71(c)   |
|                         | 20.408(a)(1)(ii)  | 80.38(a)(2)      | 80.73(a)(2)(vi)                                     | OTHER (Specify in Abstract below and in Text, NRC Form 306A) |
|                         | 20.408(a)(1)(iii) | 80.73(a)(2)(i)   | 80.73(a)(2)(vii)(A)                                 |  |
|                         | 20.408(a)(1)(iv)  | 80.73(a)(2)(ii)  | 80.73(a)(2)(vii)(B)                                 |  |
|                         | 20.408(a)(1)(v)   | 80.73(a)(2)(iii) | 80.73(a)(2)(viii)                                   |  |

LICENSEE CONTACT FOR THIS LER (12):  
NAME: W. C. Birely, Senior Engineer - Licensing Section  
TELEPHONE NUMBER: 215 841-5048  
AREA CODE: 215

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):  
 YES (If yes, complete EXPECTED SUBMISSION DATE: )  NO  
EXPECTED SUBMISSION DATE (15):

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

Abstract:

At 0209 hours on April 8, 1988, the Unit 3 Primary Containment Isolation System (PCIS) generated isolation signals and the Reactor Protection System (RPS) generated a half scram signal. The actuations were caused by the de-energization of the 'A' RPS bus during the manual transfer of a 4kV emergency bus feed. The procedures the operators used required the operation of a diesel generator, but did not provide sufficient guidance for its loading. As a result, the operators selected a load which was too high. During the load transfer, the "A" RPS bus, which was being supplied by its alternate feed, sensed an over-voltage condition thereby tripping the over-voltage relays and de-energizing the RPS bus. The actuation of the PCIS, an engineered safety feature, makes this event reportable pursuant to 10CFR50.73 (a)(2)(iv).

Performance of the 4kV emergency bus feed transfer procedure was halted, the logics were reset, and the event was reviewed. Procedure changes were made to facilitate the transfers, and additional operator training is being required.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (if more space is required, use additional NRC Form 388A's) (17)

Unit Conditions Prior to the Event:

Unit 3 was in the Refueling mode, with the core offloaded.  
The "3A" RPS bus was powered from its alternate feed.

Acronyms Used in This Report

D/G - Diesel Generator  
MSIV - Main Steam Isolation Valve  
PCIS - Primary Containment Isolation System  
RBVS - Reactor Building Ventilation System  
RPS - Reactor Protection System  
SGTS - Standby Gas Treatment System  
TPC - Temporary Procedure Change

Description of the Event:

At 0209 hours on April 8, 1988, the Unit 3 PCIS generated a half Group I isolation signal, a Group III inboard isolation, and a RBVS inboard isolation. The RPS generated a half scram signal. The PCIS Group I includes the main steam line valves and Group III includes the Primary Containment ventilation systems. The unexpected actuation of an engineered safety feature, the PCIS, makes this event reportable. The events leading to and following this event are described below.

The electrical distribution for Peach Bottom includes four 4kV emergency busses for each Unit 2 and 3. Each of these eight busses is powered by two independent offsite power supplies. On April 8, the No. 3 Startup Source supplied the E-13 bus which supplied the RPS bus via the RPS alternate power supply. In order to accommodate maintenance, the E-13 bus was being transferred to the No. 2 Startup Source. Station procedure S.8.3.D.1, "Scheduled Outage of One Off-Site Startup Source"

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|  |                                      |                |                            |                        | 0 3      | OF | 0 5 |

TEXT (if more space is required, use additional NRC Form 364A's) (17)

requires that this be accomplished using procedure S.8.4.B, "Synchronizing and Loading of Diesel Generators". At 0206 hours, the E-1 D/G was started, its output breaker (E-13) closed and the D/G was loaded. Operator judgment was used to select a D/G load of 400kW, 400kVAR. Since both Units 2 and 3 were in the Cold Shutdown and Refueling conditions, respectively, the E-13 bus load was relatively low. At 0209 hours the operator opened the E-13 bus supply breaker (E-313) thereby isolating the E-13 bus from the grid. With the E-1 D/G isolated from the grid, the voltage regulator setting caused voltage to increase to 4350 V and the governor setting caused speed to increase to 60.6 Hz. The D/G speed had been held at 60 Hz by the grid frequency when the D/G was carrying part of the grid load. When the frequency was adjusted to 60 Hz and voltage to 4150 V, the load decreased to approximately zero. When the overvoltage on the E-13 bus occurred, the "A" RPS alternate feed tripped, de-energizing the "A" RPS bus. This de-energized the channel "A" RPS logic, channel "A" PCIS logic, channel "A" power range neutron monitors, and channel "A" off gas and main steam line radiation monitors. De-energizing the "A" channels of these systems' logics initiated a half scram signal, the "A Channel Group I Isolation Relays not Reset" annunciators, PCIS Group III inboard isolation, and RBVS inboard isolation.

At 0215 hours, the operator closed the E-213 breaker, thus synchronizing the E-13 bus to the grid. At 0224 hours, he opened the E-13 breaker and shut down the E-1 D/G, thereby completing the evolution. Performance of procedure S.8.3.D.1 was halted, and the event was reviewed. At 0235 hours, the check off list from procedure GP-8C, "Groups II and III Inboard Half Isolation", was completed to verify the actuation. At 0243 hours, the "A" RPS alternate feed breaker and the "A" half-scram were reset. The PCIS Group III and RBVS isolations were reset, and reactor building ventilation was restored.

The half scram signals, and PCIS Groups I and III and RBVS isolations logics were reset after elapsed times of 34 and 37 minutes, respectively.

#### Consequences of the Event:

The consequences, both actual and postulated, were determined to be minimal. The fail-safe design of the PCIS and RBVS isolations were demonstrated and no control rod motion resulted from the half scram signal. The logic for the PCIS Group I isolation is similar to the RPS scram logic, in that a half isolation signal

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (if more space is required, use additional NRC Form 365A's) (17)

does not result in valve movement. If the event had occurred at power, the ESF actuations would have been the same. Since a half scram signal does not initiate control rod motion and a half PCIS Group I isolation does not initiate MSIV motion, no power or pressure transients would occur. The PCIS Group III and RBVS isolations would not adversely impact operation or safety as the isolations divert ventilation effluent flow through SGTS before release. Isolation of the RBVS could cause the main steam line tunnel temperatures to increase, but procedural controls are in place to control the conditions which would result in a full Group I isolation. If the event had occurred during refueling operations, the consequences would remain minimal due to the fail-safe design of the isolations.

Because of the maintenance activities (pipe replacement) being performed on Unit 3 and the systems which were blocked to permit this maintenance, only one valve, the torus vent valve (AO-3511), actually closed.

Cause of the Event:

The Operations Staff concluded that there was a lack of procedural guidance and training for the operators to determine the initial D/G loading. The Staff also concluded that the voltage regulator performed as designed, and that the design is both adequate and appropriate.

Corrective Actions:

Temporary Procedure Changes (TPCs) were made to procedures S.8.4.B and S.8.3.D.1, "Synchronizing and Loading of Diesel Generators" and "Scheduled Outage of One Off-Site Startup Source". The TPCs provided additional guidance to the operators for determining the proper loading of the D/G. With TPC approved, the operators successfully performed the load transfer on April 8, 1988. These TPCs were made into permanent revisions on April 18 (S.8.3.D.1) and April 19 (S.8.4.B).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 388A 2) (17)

Actions to Prevent Recurrence

On April 15, 1988, a training bulletin was issued to all licensed operators. The bulletin detailed this event and related procedure changes. Formal training which re-emphasizes the proper D/G loading will be added to the requalification program.

IEEE Codes:

The IEEE codes for the components in this LER are: ANN-annunciator; BLK-block; CBD-Control Board; BKR-breaker; BU-bus; DG-diesel generator; FAN-fan; ROD-(control) rod; ISV-Isolation valve.

The IEEE codes for the systems in this LER are: JM-Containment Isolation Control System (PCIS); BH - Emergency/Standby Gas Treatment System; RB - Reactor Building; NH - Reactor Containment; PK - Switchyard System.

Previous Similar Events:

Cause Code: D2 - Inadequate Procedure

Peach Bottom LER 03-87-06 also involved these actuations during transfer of power supplies.

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September 26, 1988

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MANAGER  
NUCLEAR SUPPORT DIVISION

Docket No. 50-278

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

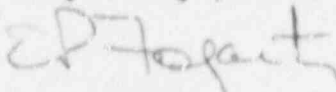
SUBJECT: Licensee Event Report  
Peach Bottom Atomic Power Station - Unit 3

This revised LER concerns the inadvertent actuation of an engineered safety feature during the performance of an approved procedure to manually transfer a 4kV emergency bus feed.

Reference: Docket No. 50-278  
Report Number: 3-88-01  
Revision Number: 01  
Event Date: April 8, 1988  
Report Date: September 26, 1988  
Facility: Peach Bottom Atomic Power Station  
RD 1, Box 208, Delta, PA 17314

This revised LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv). The revision involves changing the date from 1987 to 1988 on NRC Form No. 366, in coded field (6).

Very truly yours,



E. P. Fogarty  
Manager  
Nuclear Support Division

cc: W. T. Russell, Administrator, Region I, USNRC  
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