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February 28, 1994

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 concerns a Unit 3 Manual scram and Primary Containment Isolation System Group II/III isolations following a Main Generator problem.

Reference:	Docket No. 50-278
Report Number:	3-94-002
Revision Number:	00
Event Date:	02/03/94
Report Date:	02/28/94
Facility:	Peach Bottom Atomic Power Station RD1, Box 208, Delta, PA 17314

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

Sincerely,

Garrett D. Edwards
Plant Manager

GDE/GAJ:gaj

enclosure

cc: R.A.Burricelli, Public Service Electric & Gas
W. P. Dornsife, 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, Resident Inspector
C. D. Schaefer, DelMarVa Power
H. C. Schwemm, VP - Atlantic Electric

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CCN 94-14025

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
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)	DOCKET NUMBER (2)	PAGE (3)
Peach Bottom Atomic Power Station Unit 3	0 5 0 0 0 2 7 8	1 OF 0 4

TITLE (4)
Unit 3 Manual Scram Due to a Main Generator Problem

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	0 3	9 4	9 4	-	0 0 2	-	0 0	0 2	2 8	9 4		0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	4 5	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Anthony J. Wasong, Manager-Experience Assessment	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

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 fifteen single-space typewritten lines) (16)

On 2/03/94, a Main Generator Ground Fault alarm was received in the Control Room. A Nuclear Plant Operator (NPO) discovered that the Main Generator Ground Relay status light was out, which is indicative of a field ground, but the relay flag was not up. While troubleshooting the Main Generator ground condition, the Outside Shift Supervisor (SSV) discovered a problem in the Main Generator Exciter cabinet. The Alterex Field Collapsing Circuit resistor was overheating. A rapid reactor shutdown was commenced to enable the Main Generator to be removed from service without having to scram the reactor. The NPO and SSV returned to the Main Generator cabinet and found control wiring melted and wiring insulation discolored above the resistor. Shift Management made the decision to scram the reactor. At 1914 hours, at approximately 45% power, the unit was manually scrammed. An investigation has revealed that an internal "rack out" tab was not installed on the Alterex Field Breaker during recent maintenance activities. The Maintenance procedures used to overhaul this breaker did not provide guidance to ensure that the rack out tab was properly installed. The damaged components were repaired and the breaker was replaced with a spare. The procedure used to overhaul the Alterex Field Breaker has been temporarily changed and will be permanently revised. No previous similar events have been identified.

Requirements for 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 Event

Unit 3 was in the RUN mode at approximately 100% of rated thermal reactor (EIIS:RPV) power at the time the Main Generator ground alarm occurred. Reactor power was reduced to approximately 45% power at the time of the scram. There were no systems, structures, or components that were inoperable that contributed to the event.

Description of Event

On 2/03/94 at 1840 hours, a Main Generator Ground Fault alarm "3 GEN FIELD GROUND" was received in the Main Control Room. A Nuclear Plant Operator (NPO) (Utility : Non Licensed) was immediately dispatched to investigate the alarm at the Main Generator Exciter cabinet. The NPO discovered that the Main Generator Ground Relay status light was out, which is indicative of a field ground, but the relay flag was not up. The NPO attempted to reset the relay with unsuccessful results. While troubleshooting the Main Generator ground condition, the Outside Shift Supervisor (SSV) (Utility : Licensed) discovered a problem in the Main Generator Exciter cabinet. The Alterex Field Collapsing Circuit resistor was overheating. At 1900 hours, this information was communicated to the Main Control Room and a rapid reactor shutdown was commenced in accordance with General Procedure (GP)-9-3 "FAST REACTOR POWER REDUCTION". Reactor Recirculation flow was reduced and control rod insertion was started. The Operators were attempting to reduce reactor power to enable the Main Generator to be removed from service without having to scram the reactor. The NPO and Outside SSV returned to the Main Generator cabinet and found control wiring melted and wiring insulation discolored above the resistor. The Main Control Room was notified of the adverse conditions and Shift Management made the decision to scram the reactor. The decision was made to minimize potential damage to the Main Generator field components. At 1914 hours, with the Reactor at approximately 45% power, the unit was manually scrammed by placing the mode switch in the SHUTDOWN position. A Primary Containment Isolation System (PCIS) (EIIS:JM) Group II/III isolation occurred as expected due to Reactor water level dropping below 0" as a result of void collapse upon insertion of the control rods. Reactor water level was maintained using a Reactor Feed Pump (RFP) (EIIS:SK). Following the event at approximately 1920 hours, the scram and PCIS Group II/III isolation logics were reset and affected systems were restored to their appropriate conditions. The NRC was notified of the event at 2024 hours.

Cause of Event

An investigation has revealed that an internal "rack out" tab was not installed on the Alterex Field Breaker during recent maintenance activities. The purpose of the "rack out" tab is to mechanically close a contact in series with the Alterex Field Collapsing Circuit Resistor whenever the Alterex Field Breaker is removed from its cubicle. This provides a path to collapse the field circuit when the breaker is removed. Since the breaker was installed but the tab was missing, the resistor was continuously energized causing it to overheat. The Maintenance procedures used to overhaul this breaker did not provide guidance to ensure that the rack out tab was properly installed.

The cause of the Main Generator ground alarm was carbon buildup on the field bus work located near the brush assembly. The Main Generator Field Ground indication was not directly related to the problems with the Alterex Field Breaker and the collapsing circuit resistor, however, the breaker and resistor are located in the same panel as the Main Generator Field Ground Relay. These assemblies were cleaned two Refueling Outages ago. They are normally cleaned under a Preventive Maintenance Task every other Refueling Outage.

Analysis of Event

No actual safety consequences occurred as a result of this event.

Although plant systems are designed to mitigate a scram from 100% power, Operations personnel performed a fast power reduction to minimize the effect of a potential plant scram. In addition, all automatic PCIS isolations and Reactor Protection System initiations functioned properly.

Corrective Action

Following the event, the scram and PCIS Group II/III isolation logics were reset. Affected systems were restored to appropriate conditions.

The damaged wiring and resistors were repaired and the faulty Alterex Field Breaker was replaced with a spare. The resistor on the other Unit, which utilizes a similar type rack out tab on the breaker, was inspected to ensure that an overheating condition did not exist. The Maintenance procedure used to overhaul the Alterex Field Breaker has been temporarily changed and will be permanently revised to ensure that the rack out tabs are properly installed.

The Generator field bus work and insulation has been cleaned and the Main Generator field and Alterex equipment has been tested to verify that no further damage occurred. The Main Generator Field Ground Detection Relay was testing satisfactorily. In addition, the frequency of the Preventive Maintenance tasks associated with carbon build up on the field bus work located near the brush assembly are being evaluated. Corrective action will be implemented as appropriate pending the results of this evaluation.

Previous Similar Events

No previous similar events have been identified which involved a faulty or missing rack out tab associated with the Main Generator Alterex Field Breaker.