

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) BROWNS FERRY UNIT 2	DOCKET NUMBER (2) 0 5 0 0 0 2 6 0	PAGE (3) 1 OF 0 4
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TITLE (4)
UNPLANNED ESF ACTUATION DURING ELECTRICAL BOARD POWER TRANSFER DUE TO PERSONNEL ERROR

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)
09	05	88	88	008	00	10	05	88	BROWNS FERRY UNIT 1		0 5 0 0 0 2 5 9
									BROWNS FERRY UNIT 3		0 5 0 0 0 2 9 6

OPERATING MODE (9) **N**

POWER LEVEL (10) **0 0 0**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.38(a)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.38(a)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Earl D. Nave, Engineer, Plant Operations Review Staff	210 5 712 191 4 215 13 1 7

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)	MONTH	DAY	YEAR

ABSTRACT (Limit to 7400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On September 5, 1988, at 2206 hours with all three units defueled, the assistant shift operations supervisor (ASOS) transferred the power to the 2B 480 volt shutdown board back to its normal supply following a special test on the D diesel generator. The breaker on the 2 4kV shutdown board which supplies transformer TS2B and is the normal power source for the 2B 480 volt shutdown board, was inadvertently left in the open position. The resulting transfer to a deenergized transformer caused a loss of power at the 2B 480 volt shutdown board and a subsequent loss of power at the 2B reactor protection system (RPS) bus. This initiated standby gas treatment, control room emergency ventilation and a half scram on unit 2. The refueling zone and the unit 2 reactor zone ventilation isolated. Also, the residual heat removal and primary containment ventilation isolation valves closed. The unit 2 reactor water cleanup and traversing incore probe systems receive isolation signals on loss of RPS power but were removed from service and isolated at the time of the event. The cause of this event was personnel error in that the ASOS did not verify voltage on TS2B prior to transferring the board. The corrective action was to counsel the ASOS and discuss the event with the operations group. During this event, all systems responded as designed, placing the plant in a conservative configuration.

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

Description of Event

At the time of the event, all three units were defueled.

On September 5, 1988, at 2206 hours, the unit 3 assistant shift operations supervisor (ASOS) was restoring normal loads to 4KV shutdown board D (EIIS identifier EA). The board had been unloaded previously as a prerequisite to a special test on the D diesel generator (DG) (EIIS identifier EK) governing system. The ASOS transferred the power supply to the 2B 480 volt shutdown board (EIIS identifier ED) from its alternate source, 480 volt transformer TS2E, to its normal supply, 480 volt transformer TS2B. The breaker on 4KV shutdown board D which supplies power to transformer TS2B was inadvertently left in the open position. This transfer to a deenergized transformer caused a loss of power at the 2B 480 volt shutdown board. The 2B reactor protection system (RPS) (EIIS identifier JC) motor generator (MG) set was fed from this board and also was deenergized. This caused a loss of power to the 2B RPS bus. The following engineered safety features (ESF) actuated:

1. Unit 2 channel B half scram
2. Standby gas treatment system (SGTS) (EIIS identifier BH) initiation
3. Control room emergency ventilator (CREV) (EIIS identifier VI) train A initiation. Train B was already running at the time of the event.
4. Unit 2 reactor zone ventilation (EIIS identifier VA) isolation
5. Refuel zone ventilation (EIIS identifier VG) isolation
6. Unit 2 primary containment ventilation (EIIS identifier VB) isolation
7. Unit 2 residual heat removal (RHR) (EIIS identifier BO) isolation of the outboard shutdown cooling suction valve and the RHR system II inboard injection valve

The unit 2 reactor cleanup system (EIIS identifier CE) and the traversing incore probe system (EIIS identifier IG) receive isolation signals when power is lost to an RPS bus but were out of service and already isolated at the time of the event. At 2214 hours, the half scram and isolations were reset and affected systems were returned to normal. The required four hour report was made the NRC per 10CFR 50.72 (b)(2)(ii) at 2235 hours.

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TEXT (if more space is required, use additional NRC Form 3054 (a) (17))

Cause of Event

The cause of this event was personnel error. The voltage indicators on the 2B 480 volt shutdown board indicate when the transformer is energized. This should have been checked by the ASOS prior to attempting the transfer. The D 4KV shutdown board breakers were opened and racked out per a detailed step-by-step procedure. When the testing is complete the test director was to notify the shift operations supervisor and the unit operator that the test was complete and allow restoration of the affected systems at operations discretion. The plant managers instruction on conduct of testing (PMI-17.1) requires a return to normal section for all special tests. That section of this special test was inadequate. The test gave no specific instructions on how to return the plant to normal. The procedure should have referenced a procedure or listed the required actions. However, this inadequacy does not relieve the ASOS of the responsibility to check voltages prior to transferring power.

Analysis of Event

The duration of this event was 8 minutes. During this event all systems performed as designed, placing the plant in a conservative condition. If this event occurred during power operation, the plant would have performed in a similar manner. The ASOS had not worked excessive hours and there were no contributing environmental factors. He is an experienced senior reactor operator with no previous history of operating problems.

Corrective Action

The immediate corrective action was to close the 4KV feeder breaker on the D 4KV shutdown board, reenergizing the 2B 480 volt shutdown board. The 2B RPS MG set was returned to service. The half scram and isolations were reset and affected systems were returned to normal.

The ASOS involved in the incident was individually counseled by the shift operations supervisor (SOS). In addition, the SOS discussed this event with the operations group. The discussion and counseling focused on the necessity for strict attention to detail and to be more attentive to the task at hand. The other operations groups will review this on the required reading list. Even though the root cause of this event is personnel error, a detailed return to normal in the special test would have prevented the ASOS from being in the position to make the error. The personnel responsible for approving special test will be reminded that the steps necessary to return the equipment to normal will be identified in the test procedure.

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TEXT (if more space is required, use additional NRC Form 305A's) (17)

Previous Similar Events - BFRO-50-260/88007
 BFRO-50-260/88003
 BFRO-50-259/87015
 BFRO-50-259/86015
 BFRO-50-296/86001

Commitments - Operations groups review this event on the required reading list. Completion date December 15, 1988.

Personnel responsible for approving special tests will be reminded that a detailed return of equipment to normal is required per plant instruction. Completion date November 1, 1988.

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant
Post Office Box 2000
Decatur, Alabama 35602

OCT 07 1988

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

Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 2 - DOCKET
NO. 50-260 - FACILITY OPERATING LICENSE DPR-52 - REPORTABLE OCCURRENCE REPORT
BFRO-50-260/88008

The enclosed report provides details concerning the unplanned Engineered Safety
Feature actuation during electrical board power transfer due to personnel error.
This report is submitted in accordance with 10 CFR 50.73 (a)(2)(iv).

Very truly yours,

TENNESSEE VALLEY AUTHORITY



Guy G. Campbell
Plant Manager
Browns Ferry Nuclear Plant

Enclosures

cc (Enclosures):

Regional Administration
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

NRC Resident Inspector, Browns Ferry Nuclear Plant

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