

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 3
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TITLE (4)
480 VOLT SHUTDOWN BOARD VOLTAGE TRANSIENT INITIATES ENGINEERED SAFEGUARD FEATURES

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 8	2 4	8 8	8 8	0 0 6	0 0	0 9	2 3	8 8	BROWNS FERRY UNIT 1	0 5 0 0 0 2 5 9
									BROWNS FERRY UNIT 3	0 5 0 0 0 2 6 0

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)										
POWER LEVEL (10) 0 0 1 0	20.402(b)			20.406(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)			73.71(b)	
	20.406(a)(1)(ii)			50.38(a)(1)			50.73(a)(2)(v)			73.71(c)	
	20.406(a)(1)(iii)			50.38(a)(2)			50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 306A)	
	20.406(a)(1)(iv)			50.73(a)(2)(i)			50.73(a)(2)(vii)(A)				
	20.406(a)(1)(v)			50.73(a)(2)(ii)			50.73(a)(2)(vii)(B)				
20.406(a)(1)(vi)			50.73(a)(2)(iii)			50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)

NAME Earl D. Nave, Engineer, Plant Operations Review Staff	TELEPHONE NUMBER 2 0 5 7 2 9 7 2 5 3 7
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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 checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
		1 2 0 1 8 8	1	2	0 1 8 8

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

On August 24, 1988, at 1258 hours, with all three units defueled, the 2EN low pressure coolant injection (LPCI) motor generator (MG) set was placed in service and tied to its distribution board. Both the LPCI MG set and the 2A reactor protection system (RPS) bus were fed from the 2B 480 volt shutdown board. The result of this action was the 2C2 RPS circuit protector tripped on undervoltage, deenergizing the 2A RPS bus. This initiated standby gas treatment, control room emergency ventilation and a half scram on unit 2. The unit 2 reactor zone ventilation and the refueling zone isolated. Also, the unit 2 residual heat removal isolation and primary containment ventilation isolation valves closed. The unit 2 reactor water cleanup and traversing incore probe systems received an isolation signal but were already isolated at the time of the event. The apparent cause was an undervoltage condition created on the 2B 480 volt shutdown board when the LPCI MG set was placed in service. The testing required to establish the actual cause has not been completed. The immediate corrective action was to reset the circuit protector, reset the isolations, and return the affected systems to normal. The final determination on root cause and recurrence control will be included in a supplemental report.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Description of Event

At the time of the event, all three units were defueled. On August 24, 1988, at 1258 hours, the 2A reactor protection system (RPS) bus 2A (EIIS identifier JC) was being fed from the unit preferred transformer (EIIS identifier EF), its alternate source. The 2A RPS motor generator (MG) set was out of service for maintenance. The unit preferred transformer is fed from the 2B 480V volt shutdown board. The unit 2 low pressure coolant injection (LPCI) MG set (EIIS identifier BO) also fed from the 2B 480 volt shutdown board was placed in service at this time. The LPCI MG set start apparently created a momentary undervoltage condition on the RPS bus causing the 2C2 RPS circuit protector to trip deenergizing the 2A RPS bus.

The loss of power to the 2A RPS bus caused the following engineered safeguard features to actuate:

1. Standby gas treatment (SCTS)(EIIS identifier BH) initiation, trains A and B
2. Control room emergency ventilation (CREV) (EIIS identifier VI) initiation trains A and B
3. Unit 2 reactor zone ventilation (EIIS identifier VG) isolation
4. Refuel zone ventilation (EIIS identifier VG) isolation
5. Unit 2 residual heat removal (RHR)(EIIS identifier BO) isolation valves
6. Unit 2 primary containment ventilation (EIIS identifier VB) isolation
7. Half scram on unit 2

At 1304 hours, the isolations were reset and ventilation systems returned to normal. The required 4 hour notification per 10CFR 50.72 (b)(2)(ii) was made at 1400 hours.

The unit 2 reactor water cleanup isolation valves (EIIS identifier CE) and the traversing incore probe isolation valves (EIIS identifier IG) received an isolation signal but did not actuate because they had been removed from service and placed in the isolated condition prior to the event. Train C of SGTS did not actuate because it was tagged out at the time of the event.

Cause of Event

The apparent cause of the event was the voltage drop on 480 volt shutdown board 2B created when the 2EN LPCI MG set was returned to service. Additional testing will be required to verify the actual cause. This will be provided in a supplemental report.

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TEXT (if more space is required, use additional NRC Form 366A (1))

Analysis of Event

The elapsed time of the event was 6 minutes. All systems responded as designed and placed the plant in a conservative operating configuration. If this had occurred during power operation, the plant systems would have responded in a similar manner. Testing will be performed which will simulate the conditions that existed at the time of the event. The results of this testing should provide the following information:

- * The voltage drop created on the RPS system by starting a LPCI MG set
- * The actual setting of the 2C2 circuit protector under voltage relay
- * The means to determine whether this event was a design, maintenance or operational problem

Corrective Action

The immediate corrective action was to reset RPS circuit protector 2C2, reset isolations, and return the affected systems to normal. Recurrence control will be determined after testing based on the root cause as determined by testing. This will be provided in a supplemental report.

Previous Similar Events - BFFO-50-260/86011, 50-260/87011, 50-259/86031 R1, 50-259/88006, and 260/88002. These events are similar only in that they are events which resulted in a loss of power to an RPS bus.

Commitments - Provide root cause and recurrence control in supplemental report. To be provided by December 1, 1988.

TENNESSEE VALLEY AUTHORITY

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

9/23/88

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-50-260/88006

The enclosed report provides details concerning the 480 volt shutdown board
voltage transient initiation of engineered safeguard features. This report is
submitted in accordance with 10 CFR 50.73 (a)(2)(iv).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

Robert M. Beon for

Guy G. Campbell
Plant Manager
Browns Ferry Nuclear Plant

Enclosures

cc (Enclosures):

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U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
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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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