

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Browns Ferry Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 5 9 1	PAGE (3) OF 0 3
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TITLE (4)
Unplanned Engineered Safety Feature Actuations Due to Circuit Protector Trip Caused by Unstable Undervoltage Relay Failure

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)
06	05	88	88	01	8	00	07	05	Browns Ferry Unit 2		0 5 0 0 0 2 6 0
									Browns Ferry Unit 3		0 5 0 0 0 2 9 6

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(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 01010	20.405(a)(1)(i)	50.38(c)(1)		50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.38(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)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Stephen C. Willard, Engineer, Plant Operations Reveiw Staff	2 0 5 7 2 9 - 2 5 3 6

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
B	J	C	2 7	X 9 9 9	N				

SUPPLEMENTAL REPORT EXPECTED (14)

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

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On June 5, 1988, at 1152 hours, with all three units defueled, the 1A1 reactor protection system (RPS) circuit protector tripped deenergizing the unit 1 RPS bus 1A. This caused a half scram, partial primary containment isolations, secondary containment isolations, and actuation of the control room emergency ventilation system. The operators reset the circuit protectors and the isolations and returned the systems to standby readiness by 1200 hours.

At 1202 hours, the same circuit protector tripped again causing a repeat of the earlier event. The operators reset the circuit protector and the isolations and returned the systems to standby readiness by 1210 hours.

A troubleshooting investigation was initiated which determined that the undervoltage relay in the circuit protector was unstable when subjected to minor vibration. This relay failure caused the trip of the circuit protector which deenergized the RPS bus and led to the engineered safety feature actuations.

The relay was replaced and will be returned to the manufacturer for evaluation.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Browns Ferry Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 5 9 8 8	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		0 1 8	0 1 8	0 0	0 2	OF	0 3

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

DESCRIPTION OF EVENT

Browns Ferry units 1, 2, and 3 were defueled during this event. Unit 1 systems and common ventilation systems were involved.

On June 5, 1988, at 1152 hours, the 1A1 reactor protection system (RPS) (EIIS code JC) circuit protector tripped deenergizing the 1A RPS bus and initiating the following engineered safety features (ESF).

1. Unit 1 RPS half scram, channel A
2. Containment Isolations/Actuations (EIIS code JM)

-Unit 1

Group 2 (Residual Heat Removal) isolation, inboard valves (EIIS code BO)

Group 3 (Reactor Water Cleanup) isolation, (EIIS code CE)

Group 6 (purging and venting) isolation, inboard valves (EIIS code VB)

Group 8 (Traversing Incore Probe) isolation (EIIS code IG)

Reactor zone isolation (EIIS code VA)

-Common

Standby Gas Treatment, trains A, B, and C (EIIS code BH)

Control Room Emergency Ventilation, trains A and B (EIIS code VI)

Units 1, 2, and 3 refuel zone isolations (EIIS code VG)

The operators reset the circuit protector and the isolations and returned the system to standby readiness by 1200 hours.

At 1202 hours, the same circuit protector tripped again causing a repeat of the earlier event. The operators reset the circuit protector and the isolations and returned the systems to standby readiness by 1210 hours.

CAUSE OF EVENT

The ESF actuations occurred when the 1A1 circuit protector tripped and deenergized the 1A RPS bus. The subsequent investigation showed that the undervoltage relay in the circuit protector was unstable when subjected to minor vibrations. The cause of the relay instability has not yet been determined.

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		— 0 1 8	— 0 0	0 3	OF	0 3	

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

The failed relay was a model UCA-0234 undervoltage relay manufactured by Diversified Electronics.

CORRECTIVE ACTION

The circuit protector and the isolations were reset and the systems were returned to standby readiness. A troubleshooting investigation was initiated which determined the cause of the events to be the undervoltage relay instability. The relay was replaced and will be returned to the manufacturer for evaluation.

ANALYSIS OF EVENT

The systems affected are designed to shut down the reactor or contain and process any radioactive releases. The systems are designed to fulfill their safety functions upon loss of initiation logic power. The systems responded correctly to the loss of power; therefore, plant safety was not adversely affected. The plant's safe shutdown capabilities would not have been diminished had the unit been at power.

PREVIOUS SIMILAR EVENTS - BFRO-50-259/86002
BFRO-50-259/87015
BFRO-50-259/87018

COMMITMENTS - The relay will be returned to the manufacturer for evaluation.

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant

Post Office Box 2000

Decatur, Alabama 35602

JUL 05 1988

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

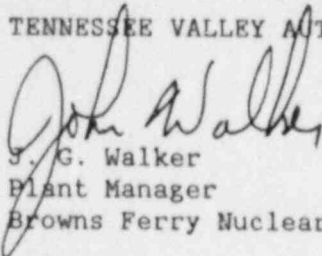
Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 1 - DOCKET
NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - REPORTABLE OCCURRENCE REPORT
BFRO-50-259/88018

The enclosed report provides details concerning the unplanned safety feature
actuators due to circuit protector trip caused by undervoltage relay failure.
This report is submitted in accordance with 10 CFR 50.73 (a)(2)(iv).

Very truly yours,

TENNESSEE VALLEY AUTHORITY


J. G. Walker
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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11