

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Browns Ferry Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 5 9	PAGE (3) 1 OF 0 4
--	--	------------------------

TITLE (4)
Unplanned Engineered Safety Feature Actuations Due To Personnel Error Caused By Procedural Inadequacies And Human Factors Concerns

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		
0	2	20	8	8	8	8	8	8	Browns Ferry Unit 2		
									DOCKET NUMBER(S)		
									0 5 0 0 0 2 6 0		
									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 § (Check one or more of the following): (11)

20.402(b)	<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"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)	<input type="checkbox"/>
20.405(a)(1)(ii)	<input type="checkbox"/>	50.73(a)(2)(vi)	<input type="checkbox"/>	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)(vii)(A)	<input type="checkbox"/>		
20.405(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(vii)(B)	<input type="checkbox"/>		
20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(ix)	<input type="checkbox"/>		

LICENSEE CONTACT FOR THIS LER (12)

NAME Stephen C. Willard, Engineer, Plant Operations Review Staff	TELEPHONE NUMBER AREA CODE: 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 NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS

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 February 20, 1988, at 0735 hours, with all three units defueled, the unit 2 reactor protection system (RPS) bus 2A was momentarily deenergized causing a half scram, partial primary containment isolations, secondary containment isolations, and actuation of the control room emergency ventilation system. The temporary loss of power occurred during RPS modifications when an electrician inadvertently opened a set of auxiliary contacts while working inside the cabinet. The operator reset the isolation logic and returned the systems to standby readiness by 0745 hours.

The workplan controlling the modifications in question did not require actions which would have prevented these actuations and did not warn the craft personnel of the potential for deenergizing the 2A RPS bus. The workplan will be revised to bypass this set of auxiliary contacts and to add a caution stating the need for extreme caution while working inside this cabinet. When similar modifications are performed on the other power supplies to the unit 2 RPS buses those workplans will be similarly revised. The craft personnel involved were counselled on the necessity of extreme caution when working around energized equipment. A description of this event will be reviewed by current operations and modifications personnel.

9803230118 880318
PDR ADCK 05000259
S DCD

IE22/11

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		
		8 8	- 0 0 6	- 0 0 0	2	OF 0 4

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

Description of Event

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

On February 20, 1988, cables were being replaced in the unit 2 reactor protection system (RPS) (EIIS code JC) power supply cabinet as part of an RPS system upgrade. At 0735 hours, while working inside the cabinet an electrician momentarily opened a set of auxiliary contacts which deenergized the coil maintaining the normal power supply contacts closed to RPS bus 2A. This deenergized the 2A RPS bus and initiated the following engineered safety features.

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

-Unit 2

Group 2 (residual heat removal) isolation, inboard valves (EIIS code BO)

Group 3 (reactor water cleanup) isolation, inboard valves (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 (SBGT), trains A 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 B train of SBGT was tagged out at the time.

Cause of Event

While performing modifications using an approved workplan, an electrician inadvertently bumped and opened a set of auxiliary contacts and caused the momentary deenergization of RPS bus 2A. The workplan controlling the

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		
		8 8	0 0 6	0 0	0 3	OF 0 4

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

modification did not require actions which would have prevented these specific events from occurring nor did it warn the craft personnel of the potential for deenergizing the bus. Additionally, the spaces inside the cabinet are confined and some of the necessary physical evolutions were awkward for the craft personnel.

Corrective Action

An investigation was initiated to determine the cause of the actuations. It was verified that none of the initiation parameters were approaching setpoints. The modification work in progress and logic drawings were reviewed. When the cause was determined the isolation logic was reset and the systems were returned to standby readiness. Work was temporarily halted on this modification and no work has been done in close proximity to the auxiliary contacts since the event occurred. The craft personnel involved were counselled on the necessity of extreme caution when working around energized equipment. The workplan will be revised prior to any additional work inside this cabinet to bypass this set of auxiliary contacts and to add a caution at this point of the workplan stating the need for extreme caution while working inside this cabinet. When similar modifications are performed on the other power supplies to the unit 2 RPS buses those workplans will be similarly revised. This modification has been completed on units 1 and 3. No modifications to the internal cabinet configuration are planned. A description of this event will be reviewed by current operations and modifications personnel.

Analysis of Event

The systems affected are designed to shutdown 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. The systems were returned to standby readiness ten minutes after the event began.

- Previous Similar Events - BFRO-50-259/86015
 BFRO-50-259/87015
 BFRO-50-260/85008
 BFRO-50-260/85014
 BFRO-50-260/85019
 BFRO-50-260/86003
 BFRO-50-260/86004
 BFRO-50-296/86001

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Browns Ferry Unit 1	DOCKET NUMBER (2) 7500025988	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		88	006	00	04	OF 04

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

Commitments - The craft personnel involved were counselled on the necessity of extreme caution when working around energized equipment.

The workplan will be revised prior to any additional work inside this cabinet to bypass this set of auxiliary contacts and to add a caution at this point of the workplan stating the need for extreme caution while working inside this cabinet.

When similar modifications are performed on the other power supplies to the unit 2 RPS buses those workplans will be similarly revised.

A description of this event will be reviewed by current operations and modifications personnel.

TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant
Post Office Box 2000
Decatur, Alabama 35602
MAR 21 1988

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

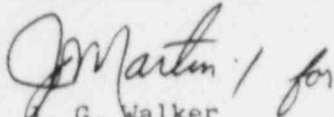
Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 1 - DOCKET
NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - REPORTABLE OCCURRENCE REPORT
BFRO-50-259/88006

The enclosed report provides details concerning the unplanned engineered safety feature actuations due to personnel error caused by procedural inadequacies and human factors concerns. 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

IE22
1/1