NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| BROWNS FERRY UNIT 1 | 0 5 0 0 0 2 5 9 | 1 OF 0 3 |

TITLE (4) UNPLANNED ENGINEERED SAFETY FEATURE ACTUATION DUE TO BREAKER MALFUNCTION CAUSED BY MISALIGNMENT IN BOARD COMPARTMENT

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

| OPERATING MODE (9) | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|---|
| | N | 20.402(b) | 20.405(c) | X 50.73(a)(2)(iv) | 73.71(b) |
| POWER LEVEL (10) | 0 0 0 | 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 |
| Stephen C. Willard, Engineer, Plant Reporting Section | 3 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 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 November 1, 1988, at 1654 hours, and again at 1700 hours with all three units defueled, shutdown bus 1 was momentarily deenergized while attempting to transfer from the alternate to the normal power supply. This caused a secondary containment isolation, start of the B diesel generator and unit 1 drywell control air inboard suction valve isolation. The operator immediately realized the normal breaker did not close in each case and immediately closed the alternate breaker thereby reenergizing the board. All affected equipment was returned to normal by 1720 hours.

The normal supply breaker failed to close because the sliding secondary contacts were not properly adjusted and did not make contact when fully racked into the board compartment. The problem was identified in the troubleshooting investigation and the alignment problem on that breaker was corrected. This was the first use of that particular breaker in that board compartment since the breaker had been installed after being refurbished. In the past, breakers had not been restricted to use in specified board compartments and there was no requirements to verify proper alignment when using replacement breakers.

The safety related 4160 volt breakers will be installed in their previous compartment when possible. Breaker alignment is now required anytime a replacement breaker is installed.Breaker alignment will be performed on the refurbished safety related 4160 volt breakers.




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Description of Event

Browns Ferry units 1, 2, and 3 were defueled during these events. Unit 1 and common ventilation and electrical equipment were involved in these events.

On November 1, 1988, at 1654 hours, and again at 1700 hours, shutdown bus 1 (EIIS code EB) was momentarily deenergized for approximately 1 second while attempting to transfer from the alternate to the normal power supply. This caused a secondary containment isolation (refuel zone and unit 1 reactor zone)(EIIS codes VA and VG), start of the B diesel generator (DG) (EIIS code EK), unit 1 drywell control air inboard suction valve (EIIS code LE) isolation, bypass of the unit 1 fuel pool demineralizer, and closure of the unit 1 reactor building closed cooling water (EIIS code KG) non-essential isolation valve.

The A DG was previously removed from service and did not actuate. None of the unit 1/2 associated Emergency Equipment Cooling Water (EECW)(EIIS system code BI) pumps were aligned for service and therefore, did not actuate upon DG start. DG cooling was provided by three unit 3 associated EECW pumps which were already running and supplying the EECW headers.

The operator immediately realized that the normal breaker did not close in each case and immediately closed the alternate breaker thereby reenergizing the board. All affected equipment was returned to normal by 1720 hours.

Cause of Event

The loss of power occurred because the normal supply breaker 1612 failed to close when given manual close signals. The normal supply breaker failed to close because the sliding secondary contacts were not properly adjusted and did not make contact when fully racked into the compartment. This was the first time that this particular breaker had been used in that compartment. In the past, the breakers have not been restricted to use in a specified compartment and there has been no requirement to verify proper alignment when using replacement breakers. Within the last six months, 72 of the 4160 volt breakers have been sent to the vendor for refurbishment. Upon return, breaker operation was tested and then the breakers were inserted into board compartments as needed to support current operation and testing.

Corrective Action

Electrical maintenance identified the problem in the troubleshooting investigation and corrected the alignment problem on that breaker.

To help prevent this condition from reoccurring the safety related 4160 volt breakers will be reinstalled in their previous compartments whenever possible. Breaker alignment is now required anytime a replacement breaker is installed. Breaker alignment will be performed on the refurbished safety related 4160 volt breakers.

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|---|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| BROWNS FERRY UNIT 1 | 0 5 0 0 0 2 5 9 | 8 8 | — 0 4 5 | — 0 0 | 0 3 OF 0 3 |

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

Analysis of Event

These breakers are tested on a regular schedule and are scheduled to be tested prior to unit startup. This condition would have been detected during normal scheduled testing prior to startup. The implementation of the recurrence controls should prevent this condition from occuring in the future.

The ESF systems affected are designed to provide emergency electrical power or contain and process radioactive releases. The systems responded correctly to the loss of power therefore, plant safety was not adversely affected. With the unit defueled and no fuel handling activities in progress there was little affect on unit operation. With this single failure, the plant's safe shutdown capabilities would not have been deminished had the unit been at power.

Previous Similar Events - BFRO-50-259/87012
BFRO-50-260/88009
BFRO-50-296/80039
BFRO-50-296/84003

Commitments

Breaker alignment will be performed on refurbished safety related 4160 volt breakers necessary for unit 2 refueling by December 31, 1988.

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

DEC 01 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-50-259/88045

The enclosed report provides details concerning the unplanned engineered safety feature actuations due to breaker malfunction caused by misalignment in board compartment. This report is submitted in accordance with 10 CFR 50.73 (a)(2)(iv).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

B. C. Mims for
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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