

A 04/06/78

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)  
DISTRIBUTION FOR INCOMING MATERIAL

50-296

REC: OREILLY J P  
NRC

ORG: FOX H S  
TN VALLEY AUTH

DOCDATE: 03/28/78  
DATE RCVD: 04/03/78

DOCTYPE: LETTER NOTARIZED: NO

COPIES RECEIVED  
LTR 1 ENCL 1

SUBJECT:

LICENSEE EVENT REPT (RO 50-296/78-004) ON 03/15/78 CONCERNING DURING  
QUALIFICATION TESTING OF BENDIX ELEC CONNECTORS IDENTICAL TO THOSE USED IN  
THE PRIMARY CONTAINMENT, THREE OF FIVE TEST SPECIMENS FAILED DURING SIMULATED  
LOCA CONDITIONS... W/ENCL.

PLANT NAME: BROWNS FERRY - UNIT 3

REVIEWER INITIAL: XJM  
DISTRIBUTOR INITIAL: *ml*

\*\*\*\*\* DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS \*\*\*\*\*

INCIDENT REPORTS  
(DISTRIBUTION CODE A002)

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ROSA\*\*W/ENCL

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TIC\*\*W/ENCL  
NSIC\*\*W/ENCL  
ACRS CAT B\*\*W/16 ENCL

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REGULATORY GUIDE 10.1

DISTRIBUTION: LTR 45 ENCL 45  
SIZE: 1P+2P+1P

CONTROL NBR: 780950045

\*\*\*\*\* THE END \*\*\*\*\*

*004*



**TENNESSEE VALLEY AUTHORITY**

CHATTANOOGA, TENNESSEE 37401

MAR 28 1978

REGULATORY DOCKET FILE COPY

Mr. James P. O'Reilly, Director  
U.S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
Region II  
230 Peachtree Street, NW., Suite 1217  
Atlanta, Georgia 30303

RECEIVED  
REGULATORY SERVICES  
SECTION

1978 APR 3 PM 5 26

RECEIVED  
REGULATORY SERVICES UNIT

Dear Mr. O'Reilly:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 3 -  
DOCKET NO. 50-296 - FACILITY-OPERATING LICENSE DPR-68 - REPORTABLE  
OCCURRENCE REPORT BYFO-50-296/784

The enclosed report provides details concerning three of five test specimens which failed during simulated LOCA conditions and during qualification testing of Bendix electrical connectors identical to those used in the primary containment. This report is submitted in accordance with Browns Ferry unit 3 Technical Specification 6.7.2.A.(9).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

H. S. Fox  
Director of Power Production

Enclosure

cc (Enclosure):

Director (3)

Office of Management Information and Program Control  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Director (40)

Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

App 2  
5/11



## (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

A horizontal number line with tick marks at 1, 2, 3, 4, 5, and 6. The line is divided into 5 equal intervals by vertical tick marks. A circle containing the number 1 is positioned at the right end of the line, near the 6 mark.

0 1 A L B F R 3 2 0 0 - 0 0 0 0 - 0 0 3 4

7 8 9 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

LICENSEE CODE LICENSE NUMBER

07-1120411 LICENSE TYPE 167-CAT 58

**CON'T**

REPORT SOURCE 01 L 6 0 5 0 0 0 2 9 6 7 0 3 1 5 7 8 8 0 3 2 8 7 8 9

**EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)**

0 2 During qualification testing of Bendix electrical connectors

0 3 identical to those used in the primary containment, three of five

0 4 test specimens failed during simulated LOCA conditions. There

0 5 was no effect on the public health or safety since this was

0 6 a laboratory test.

0 7

0 8

|                            |    |                    |    |                                |    |                               |    |                  |    |                           |    |                                   |    |
|----------------------------|----|--------------------|----|--------------------------------|----|-------------------------------|----|------------------|----|---------------------------|----|-----------------------------------|----|
| SYSTEM CODE<br>0 9         |    | CAUSE CODE<br>X X  |    | CAUSE SUBCODE<br>A             |    | COMPONENT CODE<br>P E N E T R |    |                  |    | COMP. SUBCODE<br>D        |    | VALVE SUBCODE<br>Z                |    |
| 7                          | 8  | 9                  | 10 | 11                             | 12 | 13                            | 14 | 15               | 16 | 17                        | 18 | 19                                | 20 |
| LER/RO REPORT NUMBER<br>17 |    | EVENT YEAR<br>7 8  |    | SEQUENTIAL REPORT NO.<br>0 0 4 |    | OCCURRENCE CODE<br>0 1        |    | REPORT TYPE<br>T |    | REVISION NO.<br>0         |    |                                   |    |
| 21                         | 22 | 23                 | 24 | 25                             | 26 | 27                            | 28 | 29               | 30 | 31                        | 32 |                                   |    |
| ACTION TAKEN<br>F          |    | FUTURE ACTION<br>Z |    | EFFECT ON PLANT<br>A           |    | SHUTDOWN METHOD<br>A          |    | HOURS<br>0 1 4 6 |    | ATTACHMENT SUBMITTED<br>Y |    | NPRD-4 FORM SUB.<br>N             |    |
| 33                         | 34 | 35                 | 36 | 37                             | 38 | 39                            | 40 | 41               | 42 | 43                        | 44 | PRIME COMP. SUPPLIER<br>L         |    |
| 18                         | 19 | 20                 | 21 | 22                             | 23 | 24                            | 25 | 26               | 27 | 28                        | 29 | COMPONENT MANUFACTURER<br>B 2 0 0 |    |
| 30                         | 31 | 32                 | 33 | 34                             | 35 | 36                            | 37 | 38               | 39 | 40                        | 41 | 42                                |    |

### CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The cause was a design deficiency. Three Bendix connectors, P/N 10-214036-78p,  
1 1 shorted between pins on the unpotted side. The short was caused by the entry of  
1 2 moisture through the grommet on the rear of the connector. The connectors in the  
1 3 primary containment, applicable to the safety systems required to be operational  
1 4 during a LOCA, were potted with 3M Scotchcast. The potted connectors were qualified

| FACILITY STATUS |   | % POWER |      | OTHER STATUS (30) |          | METHOD OF DISCOVERY |        | DISCOVERY DESCRIPTION (32) |  |
|-----------------|---|---------|------|-------------------|----------|---------------------|--------|----------------------------|--|
| 1               | 5 | Z       | (28) | 0                 | 9 5 (29) | N.A.                | C (31) | During special test        |  |

ACTIVITY CONTENT  
RELEASED OF RELEASE

1 6 7 8 9 10 11

Z Z

33 34

AMOUNT OF ACTIVITY (35)

N.A.

44

LOCATION OF RELEASE (36)

N.A.

45 80

| PERSONNEL EXPOSURES |   |   |      |             |      |   |      |      |      |
|---------------------|---|---|------|-------------|------|---|------|------|------|
| NUMBER              |   |   | TYPE | DESCRIPTION |      |   |      |      |      |
| 1                   | 7 | 0 | 0    | 0           | (37) | 2 | (38) | N.A. | (39) |

| PERSONNEL INJURIES |   | DESCRIPTION |   | 41   |    |
|--------------------|---|-------------|---|------|----|
| NUMBER             |   |             |   |      |    |
| 1                  | 8 | 0           | 0 | 0    | 40 |
|                    |   |             |   | N.A. |    |

| 7 |   | 8 |      | 9                             |  | 11          |  | 12 |  | 80 |  |
|---|---|---|------|-------------------------------|--|-------------|--|----|--|----|--|
|   |   |   |      | LOSS OF OR DAMAGE TO FACILITY |  |             |  |    |  |    |  |
|   |   |   |      | TYPE                          |  | DESCRIPTION |  |    |  |    |  |
| 1 | 9 | Z | (42) | N.A.                          |  |             |  |    |  |    |  |

7 8 9 10 80  
 PUBLICITY  
 ISSUED DESCRIPTION (45) NRC USE ONLY  
 2 0 Y (44) Press release on March 16, 1978  
 7 8 9 10 68 69 80

NAME OF PREPARER:

**PHONE:**

Cause Description and Corrective Actions (Continued)

by laboratory test.



Report Number : BFRO-50-296/784  
Report Date : March 28, 1978  
Occurrence Date : March 15, 1978  
Facility : Browns Ferry Nuclear Plant Unit 3

Identification of Occurrence

Three Bendix electrical connectors, P/N 10-214036-78p, failed qualification testing at Wyle Laboratories. The test specimens were the same type connectors as those presently used in primary containment.

Conditions Prior to Occurrence

Unit at approximately 95-percent power.

Description of Occurrence

Pin-to-pin shorts occurred in connectors during simulated LOCA conditions.

Designation of Apparent Cause of Occurrence

Moisture entered the rear of the connectors through the grommets. This moisture, combined with impurities, caused pin-to-pin shorts.

Analysis of Occurrence

Test results indicated that identical connectors used in primary containment could possibly fail during a LOCA. The unit was removed from service for corrective action. Since this test was conducted in a laboratory, no effects existed upon public health or safety.

Corrective Action

Connectors in primary containment were potted with 3M Scotchcast to provide an adequate seal against moisture. The potted connectors were qualified by laboratory test.