UPDATE REPORT PREVIOUS REPORT DATE 2/8/83

NRC FORM 366 (12-81) 10 CFR 50

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

APPROVED BY OMB 3150-0011

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 LICENSEE CODE: A L B R F 3 (2) LICENSE NUMBER: 0 0 - 0 0 0 0 0 - 0 0 (3) LICENSE TYPE: 4 1 1 1 1 (4) CAT (5)

CON'T

01 REPORT SOURCE: L (6) DOCKET NUMBER: 0 5 0 0 0 2 9 6 (7) EVENT DATE: 0 1 1 6 8 3 (8) REPORT DATE: (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 With unit 3 in maintenance outage, the RHR 3D heat exchanger leaked reactor
03 coolant into the RHR service water, which discharges to Wheeler Reservoir.
04 The activity level of the discharged water was in excess of Technical
05 Specification (TS) 3.8.A.1 limits. Redundant safety systems were initiated and
06 available. RHR 3D heat exchanger was isolated. There was no danger to health
07 or safety of the public, and no resulting significant chain of events.
08

09 SYSTEM CODE: C F (11) CAUSE CODE: E (12) CAUSE SUBCODE: X (13) COMPONENT CODE: H T E X C H (14) COMP. SUBCODE: G (15) VALVE SUBCODE: Z (16)

(17) LER/RO REPORT NUMBER: EVENT YEAR: 8 3 — SEQUENTIAL REPORT NO.: 0 0 4 / OCCURRENCE CODE: 0 3 REPORT TYPE: L — REVISION NO.: 1

ACTION TAKEN: X (18) FUTURE ACTION: Z (19) EFFECT ON PLANT: Z (20) SHUTDOWN METHOD: Z (21) HOURS (22): 0 0 0 0 ATTACHMENT SUBMITTED: Y (23) NPRD-4 FORM SUB.: Y (24) PRIME COMP. SUPPLIER: N (25) COMPONENT MANUFACTURER (26): P 1 6 0

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 Investigation disclosed twelve dented tubes in the heat exchanger, with one
11 dented tube leaking. All twelve dented tubes were plugged. An investigation
12 will continue during the next refuel outage to determine the cause. A follow-
13 up report will be submitted at that time.
14

15 FACILITY STATUS: G (28) % POWER: 0 0 0 (29) OTHER STATUS (30): NA METHOD OF DISCOVERY: A (31) DISCOVERY DESCRIPTION (32): Radiation Alarm & Grab Sample Analysis

16 ACTIVITY RELEASED: L (33) CONTENT OF RELEASE: M (34) AMOUNT OF ACTIVITY (35): 0.0145 curies LOCATION OF RELEASE (36): From RHRSW to Wheeler Reservoir

PERSONNEL EXPOSURES

17 NUMBER: 0 0 0 (37) TYPE: Z (38) DESCRIPTION (39): NA

8411140575 841102
PDR ADOCK 05000296
S PDR

PERSONNEL INJURIES

18 NUMBER: 0 0 0 (40) DESCRIPTION (41): NA

LOSS OF OR DAMAGE TO FACILITY

19 TYPE: Z (42) DESCRIPTION (43): NA

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PUBLICITY

20 ISSUED: Y (44) DESCRIPTION (45): Information releases to the public news media

NRC USE ONLY

NAME OF PREPARER J. B. Walker PHONE (205) 729-3865

Tennessee Valley Authority
Browns Ferry Nuclear Plant

Form BF 17
BF 15.2
2/19/82

LER SUPPLEMENTAL INFORMATION

BFRO-50- 296 / 8304 Technical Specification Involved 3.8.A.1

Reported Under Technical Specification 6.7.2.b.(4) * Date Due NRC

Event Narrative:

Unit 1 was at 99 percent power and units 2 and 3 were in refueling and maintenance outages, respectively. Only unit 3 was affected by this event. During maintenance on unit 3, reactor coolant leaked from RHR heat exchanger 3D into the RHR service water system which discharges into the Wheeler Reservoir. The concentration in the discharge water released was in excess of Technical Specification 3.8.A.1 limits. The heat exchanger was immediately isolated. 3B RHR heat exchanger was available and placed in service. Because the radiation monitor monitoring 3B heat exchanger is also common to 3D heat exchanger, residual radioactivity caused an alarm with 3B heat exchanger in service. It was isolated, resulting in complete loss of shutdown cooling capability. (3A and 3C RHR was out of service previously for valve maintenance). This resulted in initiation of an ALERT in accordance with the Radiological Emergency Plan. Reactor cooling was maintained through the condenser, CRD and reactor water clean-up systems until it was confirmed that the suspected leak on 3B heat exchanger was due to the false indication. 3B heat exchanger was returned to service and the ALERT terminated. Both sides of 3D heat exchanger were isolated and drained to prevent further radioactive discharge from the plant.

(continued)

* Previous Similar Events: None

Retention: Period - Lifetime; Responsibility - Document Control Supervisor

*Revision: JRP

Event Narrative (Continued)

Corrective maintenance was initiated to locate and repair the leaking heat exchanger. Extensive analysis (see attached vendor report) revealed twelve tubes to be dented with one dented tube leaking. All 12 dented tubes were plugged.

Metallurgical examination of the subject tube has been performed. Leakage was through a circumferentially oriented crack. Mechanical damage to the tube was noted in the location of the crack. This mechanical damage appears to have caused the failure. "Bite" marks on either side of the crack are additional evidence of mechanical damage. Several metallographic cross sections of the crack did not reveal any evidence of corrosion assistance to the failure. It is most likely that this tube was installed in the heat exchanger in a damaged condition. Since the other tubes found to be in a mechanically damaged condition have been plugged, no further corrective actions are recommended at this time.

TENNESSEE VALLEY AUTHORITY
Browns Ferry Nuclear Plant
P. O. Box 2000
Decatur, Alabama 35602

November 2, 1984

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

Dear Sir:
TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 3 - DOCKET NO. 50-296 - FACILITY OPERATING LICENSE DPR-09 - REPORTABLE OCCURRENCE REPORT BFRO-50-296/83004 R1

The enclosed report provides additional details concerning a release into Wheeler Reservoir in excess of Technical Specification limits. This report is submitted in accordance with Browns Ferry Unit 3 Technical Specification 6.7.2.b.(4).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

D. T. Jones

G. T. Jones
Plant Manager
Browns Ferry Nuclear Plant

Enclosure
cc (Enclosure):
Regional Administrator
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
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Atlanta, Georgia 30303

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

NRC Resident Inspector, BFN

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