NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Browns Ferry - Unit 3	0 5 0 0 0 2 9 6	1 OF 0 2

TITLE (4)
Valve Limitorque Motor Pinion Gear Failures (FCV-73-3)

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 1	0 5 0 0 0 2 5 9
1 1	2 2	8 4	8 4	0 1 3	0 0	1 2	2 1	8 4	Browns Ferry - Unit 2	0 5 0 0 0 2 6 0

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)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.71(c)
0 0 0		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X 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)	10 CFR 50, Part 21
		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
Jimmy B. Walker	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
A	B J	F C V	C 6 8 0	yes							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X YES (If yes, complete EXPECTED SUBMISSION DATE)	NO		0 1	1 5	8 5

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

During startup after cycle 5 refueling outage, the high pressure coolant injection (HPCI) outboard steam supply isolation valve would not open. This made the HPCI system inoperable. All Technical Specification (TS) requirements for redundant systems were met. The valve would not open due to the motor pinion gear being installed backwards.

The valve motor pinion and mating worm shaft gears were replaced in the proper direction. A random sample of similar valves are being inspected.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Browns Ferry - Unit 3	0 5 0 0 0 2 9 6	8 4	— 0 1 3	— 0 0	0 2 OF 0 2

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

Unit 1 was operating at 74 percent power, unit 2 was in a refueling outage, and unit 3 in the startup mode at 138 psig. Only unit 3 was affected by this event, But in addition, units 1 and 2 valves were randomly sampled to ensure no problems were present.

On November 22, 1984, at 2130, during performance of the valve's operability Surveillance Instruction, it was discovered that the flow control valve (FCV) (FCV-73-3) would not open.

The valve is a 10 inch gate valve which is manufactured by Crane. The limitorque valve operator was disassembled and visually inspected for damage. Inspection determined that the motor pinion gear (GR) was installed backwards during previous maintenance work. When the gear was installed backwards, full engagement of mating gears was not maintained. This caused additional loading of the outer portion of the motor pinion gear teeth which in turn caused some of the teeth to break which allowed the motor to spin without engaging the limitorque operator. The motor pinion gear and mating worm gears were replaced with new gears in the proper direction.

Also, the cable from the power supply to motor shunt field was found to be open. The open cable caused FCV-73-3 to operate in approximately 8 seconds since the motor operates as a series DC motor with the shunt field open. The cable was repaired and the valve then operated in approximately 16 seconds. The maximum stroke time for this valve is 20 seconds.

Valve FCV 73-3 failed in the closed position. Primary containment isolation was maintained by the inboard isolation valve, but the inoperable outboard valve rendered the high pressure coolant injection (BJ) system inoperable. All Technical Specification requirements were complied with.

A 20 percent random sample of all accessible ECCS valves are being inspected on all units. All valves in question have been inspected with the exception of two valves on the core spray system on unit 3 and high pressure coolant injection and reactor core isolation cooling inboard valves on unit 1. A followup response will be submitted after those valves have been inspected.

This event is reportable under 10 CFR 50, Part 21.

Responsible Plant Section - MM

Previous Similar Events - None

TENNESSEE VALLEY AUTHORITY

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

December 21, 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-68 - REPORTABLE OCCURRENCE REPORT BFRO-50-296/84013

The enclosed report provides additional details concerning valve limitorque motor pinion gear failures (FCV-73-3). This report is submitted in accordance with 10 CFR 50.73 (a)(2)(v) and has been determined to be 10 CFR 21 reportable.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

for J. R. Pittman

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
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

NRC Resident Inspector, BFN

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
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