

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Browns Ferry - Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 2 1 9 6										PAGE (3) 1 OF 0 2																																	
TITLE (4) Residual Heat Removal Valve (3 FCV-74-67) Stem Broke																																																					
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)														
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0 2			2 8			8 4			8 4			0 0			4			0 0			0 3			1 4			8 4															0 5 0 0 0											
OPERATING MODE (9) N									THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																																												
POWER LEVEL (10) 0 9 0									20.402(b)									20.405(e)									50.73(a)(2)(iv)									73.71(b)																	
									20.405(a)(1)(i)									50.73(a)(1)									50.73(a)(2)(v)									73.71(e)																	
									20.405(a)(1)(ii)									50.73(a)(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)(ix)																																			
LICENSEE CONTACT FOR THIS LER (12)																																																					
NAME Jimmy B. Walker															TELEPHONE NUMBER 2 0 5 7 1 2 9 1 - 0 7 1 8 8																																						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																					
CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC						CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NRC																							
X			BIO			I I I V W I O I 3 I O						Y																																									
SUPPLEMENTAL REPORT EXPECTED (14)																																																					
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)															<input type="checkbox"/> NO																																						
															EXPECTED SUBMISSION DATE (15)																																						
															MONTH DAY YEAR																																						
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																																																					
<p>During the unit 3 cycle 5 refueling outage on February 28, 1984, the Residual Heat Removal (RHR) Outboard Loop II Isolation Valve stem was found to be broken upon disassembly. (The unit was removed from service on September 7, 1983.) The valve (FCV-74-67) is a 24-inch gate valve which is manufactured by Walworth Company. The most probable cause for the valve stem to break was due to overstress or extreme loading conditions.</p> <p>The metallurgical engineers performed a failure analysis of the stem breaks which indicated the failure was due to overloading. The stem was broken in two places. Metallurgical examinations did not find any evidence of fatigue or corrosion attack of the fracture surfaces.</p> <p>Operation Instructions state to use the loop not previously used when going into shutdown cooling. Loop I was used per the shift engineer's log.</p> <p>The valve stem is made of 410 stainless steel and will be replaced with 17-4 PH stainless. Further investigation of the limitorque, limitorque switches, and valve disc is being conducted</p>																																																					
8403200087 840314 PDR ADOCK 05000296 S PDR																																																					

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Browns Ferry - Unit 3	0500029684	-	004	-	00	02 OF 02

TEXT (If more space is required, use additional NRC Form 368A's) (4)

Unit 1 was operating at 95.5 percent power, unit 2 was at 90.2 percent power, and unit 3 was in a refueling outage. Only unit 3 was affected by the event.

On February 28, 1984 at 1030, while unit 3 was in a refueling outage, it was discovered that the valve stem on Low Pressure Coolant Injection System (BO) Loop II injection valve (FCV) was broken. The valve stem was broken in two places, once below the stem packing area and once at the gate connection. The upper stem break surface was battered from cycling the valve after the stem broke.

The valve (FCV-74-67) is a 24-inch gate valve which is manufactured by Walworth Company. The valve stem is made of 410 stainless steel and will be replaced with 17-4 PH stainless which is a stronger and more durable material. From visual examination of the stem break surface, an oxide deposit was present over approximately 50 percent of the total stem cross-sectional break, which indicated that the valve stem had been cracked for some period of time. Metallurgical examination did not find any evidence of fatigue or corrosion attack on the fracture surface.

The unit was removed from service on September 7, 1983 for refueling using Loop I RHR during shutdown cooling. Operation instructions require that the loop not previously used be used when going into shutdown cooling. The shift engineer's and unit operator's logs were reviewed to verify which loop was used September 7, 1983 on unit 3. Loop I RHR was used during shutdown. RHR system is used for shutdown cooling when the reactor pressure is below 100 psig and the reactor temperature is between 200°F and 240°F.

The unit was in cold shutdown at the time and fuel was removed from the vessel. There were no serious safety problems from this event. Since this valve is only cycled during cold shutdown, it is doubtful that a valve failure could go undetected. Failure of the valve during a design basis accident is within the single failure criteria. A followup report will be submitted by June 15, 1984 discussing details of the investigation of the limitorque, limitorque switches, and valve disc.

Responsible Plant Section - N/A

Previous Similar Events - None

TENNESSEE VALLEY AUTHORITY

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

March 14, 1984

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

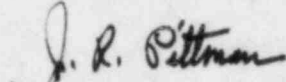
Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 3 - DOCKET  
NO. 50-296 - FACILITY OPERATING LICENSE DPR-68 - REPORTABLE OCCURRENCE  
REPORT BFR0-50-296/84004

The enclosed report provides details concerning broken residual heat  
removal valve (3 FCV-74-67) stem. This report is submitted in accordance  
with 10 CFR 50.73 (a)(2)(ii).

Very truly yours,

TENNESSEE VALLEY AUTHORITY



G. T. Jones  
Power Plant Superintendent  
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, GA 30303

NRC Inspector, Browns Ferry Nuclear Plant

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