

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Browns Ferry - Unit 1DOCKET NUMBER (2)  
0 5 0 0 0 2 5 9 1 OF 0 3TITLE (4)  
Manual Scram Due to Leaking Valve BonnetsEVENT DATE (5)  
MONTH DAY YEAR YEAR  
0 3 1 8 8 5 8 5  
LER NUMBER (6)  
SEQUENTIAL NUMBER REVISION NUMBER  
0 0 8 0 1  
REPORT DATE (7)  
MONTH DAY YEAR  
0 5 2 4 8 5  
OTHER FACILITIES INVOLVED (8)  
FACILITY NAMES DOCKET NUMBER(S)  
Browns Ferry - Unit 2 0 5 0 0 0 2 6 1 0  
Browns Ferry - Unit 3 0 5 0 0 0 2 9 1 6OPERATING MODE (9) N  
POWER LEVEL (10) 0 9 1 0  
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)  
20.402(b) 20.406(c) 50.73(a)(2)(iv) 73.71(b)  
20.406(a)(1)(i) 50.36(c)(1) 50.73(a)(2)(v) 73.71(c)  
20.406(a)(1)(ii) 50.36(c)(2) 50.73(a)(2)(vii) OTHER (Specify in Abstract below and in Text, NRC Form 366A)  
20.406(a)(1)(iii) X 50.73(a)(2)(ii) 50.73(a)(2)(viii)(A)  
20.406(a)(1)(iv) 50.73(a)(2)(iii) 50.73(a)(2)(viii)(B)  
20.406(a)(1)(v) 50.73(a)(2)(ix)LICENSEE CONTACT FOR THIS LER (12)  
NAME TELEPHONE NUMBER  
Stephen B. Jones 2 0 5 7 1 2 9 - 1 2 5 3 1 8  
AREA CODECOMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)  
CAUSE SYSTEM COMPONENT MANUFAC. REPORTABLE TO NPRDS CAUSE SYSTEM COMPONENT MANUFAC. REPORTABLE TO NPRDS  
A B J H C V D B J H C V  
A B I N H C VSUPPLEMENTAL REPORT EXPECTED (14)  
YES (If yes, complete EXPECTED SUBMISSION DATE) X NO  
EXPECTED SUBMISSION DATE (15)  
MONTH DAY YEAR

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

On March 15, 1985, it was discovered that the High Pressure Coolant Injection (HPCI) and the Reactor Core Isolation Cooling (RCIC) turbine exhaust valves (HCV-73-23 and HCV-71-14), the HPCI turbine exhaust drain valve (HCV-73-24), and the RCIC turbine condenser vacuum pump discharge valve (HCV-71-32) had flanged bonnets that were not being local leak tested in accordance with 10 CFR 50, Appendix J requirements. Unit 1 was manually scrambled on March 19, 1985, after the bonnets of HCV 73-23 and HCV 71-14 failed to pass the leak tests. On April 25, 1985, an engineering evaluation identified that the HPCI and RCIC turbine exhaust valves were being tested using water instead of air as required by Appendix J. The applicable procedure was revised and on April 26, 1985, HCV 73-23/206 failed an air leak test. In addition to the valves mentioned above, several other valves, orifices, or valve bonnets have been identified that are not being tested in compliance with Appendix J. All valves that have failed leak test will be repaired and pass a leak test. The Browns Ferry Appendix J Program is being reviewed to determine all valves requiring a test and the testing criteria.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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 1	0 5 0 0 0 2 5 9	8 5	- 0 0 8	- 0 1	0 2	OF	0 3

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

Unit 1 was at 90 percent power, unit 2 was in a refueling outage, and unit 3 was in cold shutdown. All three units were affected.

On March 15, 1985, while performing maintenance work on the unit 2 High Pressure Coolant Injection (HPCI) (BJ) turbine exhaust valve (HCV-73-23), it was discovered that the valve bonnet was not being leak checked in accordance with 10 CFR 50, Appendix J requirements. A review of engineering drawings and applicable procedures revealed that the Reactor Core Isolation Cooling (RCIC) (BN) turbine exhaust valve (HCV-71-14), the HPCI turbine exhaust drain valve (HCV-73-24), and the RCIC turbine condenser vacuum pump discharge valve (HCV-71-32) had flanged bonnets that were not being local leak rate tested. All four valves are stop lift check valves. On March 15, 1985, Surveillance Instruction 4.7.A.2.g.2 was revised to include bonnet leak tests for HCV-73-23 and HCV-71-14. The other valves, HCV-71-32 and HCV-73-24, were not added at this time since a modification was required to make the valve bonnets testable. A subsequent review of the Browns Ferry Appendix J Program found that the RCIC turbine exhaust valves, HCV-71-14/580, and the HPCI turbine exhaust valves, HCV-73-23/603, were not being tested with the proper medium. SI 4.7.A.2.g.2 was revised, and the unit 3 valves were leak tested with air instead of water on April 26, 1985. Test results indicated that the total allowable leakage, La, was exceeded, primarily through HCV-73-23/603. In addition to the HPCI and RCIC turbine exhaust valves, several other valves (see attachment) have been identified as having Appendix J requirement deficiencies.

Unit 1 was manually scrambled on March 19, 1985, at 0127 in order to comply with Technical Specification 4.7.A.2.h requirements after HCV-73-23 and HCV-71-14 both failed the bonnet leak test. HCV-71-14 and HCV-73-23 both passed the local leak test on unit 2 while HCV-71-14 on unit 3 failed the test. Unit 3 was already in cold shutdown so no action was required.

The root cause of this condition was the failure to properly identify all the 10 CFR 50, Appendix J valves and testing criteria. HCV-1-71-14 and HCV-3-71-14 were disassembled and inspected. Both valves had an extra outer bonnet gasket which made the inner gasket ineffective. The valve bonnet integrity was not breached on either valve based on no external leakage being detected during the bonnet leak test, and the valve bonnet seeing pressure during the last integrated leak rate test (ILRT). Disassembly of HCV-1-73-23 revealed a deteriorated outer gaskets. During the local leak rate test, considerable leakage was seen through the outer gasket. Since this valve bonnet had seen pressure during the last ILRT and had been visually inspected with no leakage indications, it appears the bonnet integrity was maintained by the inner gasket.

HCV-71-32 and HCV-73-24 had a single gasketed bonnet design; therefore, they were not testable. Both of these valves, on all three units, are being modified so they will have a testable bonnet. These valves will be tested prior to their respective unit's startup.

When HCV-3-71-32, HCV-3-73-24, and HCV-2-71-32 were disassembled for modification, a spring was found missing. This spring constantly exerts a small closing force on the valves' disc. An engineering evaluation was performed on the valves and determined that the missing springs did not adversely affect any safety related functions.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Browns Ferry - Unit 1	0 5 0 0 0 2 5 9	8 5	0 0 8	0 1	0 3	OF	0 3

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

HCV-3-73-23/603 failed to pass the leak test primarily because they have been maintained to pass water tests, not air tests.

The bonnets of HCV-1-71-14, HCV-3-71-14, and HCV-1-73-23 were repaired and subsequently passed leak test. HCV-3-73-24 and HCV-3-71-32 have been modified to a testable bonnet design and have successfully passed the bonnet leak test. HCV-2-73-24, HCV-3-73-24, HCV-2-71-32, and HCV-3-71-32 will be modified and tested prior to their respective units startup. HCV-3-73-23/603 will be repaired and successfully pass leak test prior to unit 3 startup. The revision to SI 4.7.A.2g.2 will assure that HCV-73-23/603 and HCV-71-14/580 are tested prior to unit 1 and 2 startup. The valves listed on the attachment will be added to the appropriate SI following the modification required to make the valve, orifice, or bonnet testable. These valves were satisfactorily tested during the type A testing; therefore, immediate action is not being taken. These modifications are scheduled for the next outage on each unit, starting with the unit 1 refueling outage.

An engineering evaluation is continuing on the Browns Ferry Appendix J Program. This review will determine if any additional valves are to be tested, and what the testing criteria are to be.

The results of the latest ILRT and bonnet leak tests show that primary containment was not breached by HCV-3-71-14, HCV-1-71-14, and HCV-1-73-23. The engineering evaluation of the valves missing springs determined that the valve safety related functions were not adversely affected. The excessive leakage through HCV-73-23/603 produced a potential to increase environmental releases during a loss of coolant accident.

Responsible Plant Section - N/A

Previous Events - BFRO-50-260/83005

## ATTACHMENT

### Residual Heat Removal

<u>Component</u>	<u>Identification No./Unit</u>	<u>Modification Required</u>
RHR Air Return Valves	FCV 74-102, FCV 74-103, FCV 74-119, FCV 74-120 (All units)	Add block valves, vent valves and test connec to type C test valves.
RHR Suppression Chamber Spray Valve Bonnet	FCV 74-58 (Unit 2 and 3)	Orientate valve so the bonnet is tested during the type C test.
RHR Recirculation and Pump Test Valve Bonnet	FCV 74-59 (Unit 3)	Orientate valve so the bonnet is tested during the type C test.

### High Pressure Coolant Injection

<u>Component</u>	<u>Identification No./Unit</u>	<u>Modification Required</u>
Minimum Flow Valve Bonnet	FCV 73-30 (All units)	Add block valve and test connection so bonnet is tested during type C tes

### Reactor Core Isolation Cooling

<u>Component</u>	<u>Identification No./Unit</u>	<u>Modification Required</u>
Minimum Flow Valve Bonnet	FCV 71-34 (All units)	Install block valve to test bonnet.
Orifice	Minimum flow orifice	Install block valve to test orifice.

### Auxiliary Boiler

<u>Component</u>	<u>Identification No./Unit</u>	<u>Modification Required</u>
Auxiliary Boiler to RCIC Bonnet	HCV 12-742 (All units)	Install block valve to test bonnet.



(Continued)

Core Spray

<u>Component</u>	<u>Identification No./Unit</u>	<u>Modification Required</u>
Suppression Chamber Pool High Level Control Valve Bonnet	FCV 75-57 (All units)	Add block valve to test bonnet or cut out valve and cap.
<u>Containment Air Dilution</u>		
CAD Supply Valves	FSV 84-8A, FSV 84-8B FSV 84-8C, FSV 84-8D	Add block valves and test connections to test valve in correct direction.

TENNESSEE VALLEY AUTHORITY

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

May 24, 1985

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

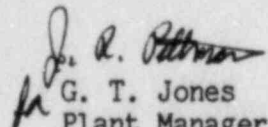
Dear Sir:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 1 -  
DOCKET NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - REPORTABLE  
OCCURRENCE REPORT BFRO-50-259/85008 R1

The enclosed report provides details concerning a manual scram due to  
leaking valve bonnets. This report is submitted in accordance with  
10 CFR 50.73 (a)(2)(i).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
G. T. Jones  
Plant Manager  
Browns Ferry Nuclear Plant

Enclosures

cc (Enclosures):  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
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Atlanta, Georgia 30339

NRC Resident Inspector, BFN