

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Fermi 2</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 3 4 1 1</b>	PAGE (3) <b>1 1 OF 3</b>
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TITLE (4)  
**Pressure Isolation Valve Leak Test Failure**

EVENT DATE (5)			LER NUMBER (6)					REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)							
MON	DAY	YR	YR	SEQUENTIAL NUMBER				REVISION NUMBER	MON	DAY	YR	FACILITY NAMES						
9	8	98	98	-	0	0	8	-	0	0	10	8	98					
											DOCKET NUMBER (5) <b>0 5 0 0 0</b>							

OPERATING MODE (9)  
**5**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (11)

POWER LEVEL (10)  
**0 0 0**

10 CFR 50.73(a)(2)(i)(B)  
 OTHER - \_\_\_\_\_  
 (Specify in Abstract below and in text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

**Ron W. Gaston, Compliance Supervisor**

TELEPHONE NUMBER  
 AREA CODE: **734**      NUMBER: **586-5134**

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
B	B	O I S V	A 3 9 1						

SUPPLEMENTAL REPORT EXPECTED (14)      EXPECTED SUBMISSION DATE (15)

YES (If yes, complete EXPECTED SUBMISSION DATE)       NO

MONTH: \_\_\_\_\_ DAY: \_\_\_\_\_ YEAR: \_\_\_\_\_

ABSTRACT (16)

Testing of the Reactor Coolant System Pressure Isolation Valves (PIVs) was completed during the Sixth Refueling Outage (RFO6), beginning September 4, 1998, in accordance with Technical Specification (TS) 3.4.3.2. On September 8, 1998, the Division 2 Residual Heat Removal (RHR)/Low Pressure Coolant Injection (LPCI) System injection line inboard isolation check valve, E1100F050B, failed to meet the leakage criteria of 10 gpm as specified in TS Table 3.4.3.2-1. During the leak test, the test pressure could not be achieved and, therefore, leakage past the PIV was categorized as through seat leakage. The RHR/LPCI System injection line outboard isolation motor operated PIV, E1150F015B, was successfully tested and met its leakage criteria. Therefore, the minimum pathway leakage for the penetration was met.

The cause of the valve leakage was a degraded soft seat which would not allow seat alignment in order to achieve the necessary valve seat sealing.

Valve E1100F050B was refurbished with a new soft seat. Post maintenance leak rate was within acceptable Technical Specification limits. An evaluation of the soft seat examination results is being performed to assist in determining the periodicity for replacement of the soft seat.

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INITIAL PLANT CONDITIONS:

Operational Condition:           5   Refueling  
 Reactor Power:                    0   Percent  
 Reactor Pressure:                 0   psig  
 Reactor Temperature:           93   degrees Fahrenheit

DESCRIPTION OF THE EVENT:

On September 8, 1998, leak testing of Pressure Isolation Valve (PIV) E1100F050B, Division 2 Residual Heat Removal (RHR)/Low Pressure Coolant Injection (LPCI) System injection line inboard isolation check valve, was performed in accordance with Technical Specification (TS) 3.4.3.2. The resultant leak rate was determined to be in excess of the leakage criteria of 10 gpm as specified in TS Table 3.4.3.2-1. While attempting to pressurize the downstream side of the valve, the test pressure could not be achieved and, therefore, leakage past the PIV was categorized as through seat leakage. During the testing, Division 2 systems were out of service for maintenance activities on that Division; therefore, there was no impact on the plant in the refueling configuration. The upstream RHR/LPCI System injection line outboard isolation motor-operated valve, E1150F015B, was successfully leak tested and met its leakage criteria as specified in TS Table 3.4.3.2-1.

CAUSE OF THE EVENT:

Valve E1100F050B was disassembled to determine the cause of the excessive leakage. Examination revealed that the valve disk soft seat had become degraded and would not conform to provide the necessary sealing of the disk at the valve seat. The soft seat degradation has been evaluated to be consistent with normal aging and wear.

ANALYSIS OF THE EVENT:

The purpose of the PIVs is to provide isolation at the interfaces between high pressure and low pressure systems. The affected valve was one of two valves in the Division 2 LPCI System injection line which provided the isolation of the high pressure Reactor Coolant System from the low pressure LPCI System. The other valve in the injection line, motor-operated valve E1150F015B, was successfully tested and met its leakage criteria. Therefore, isolation of the high pressure to low pressure interface was maintained during power operation when the injection line check valve, E1100F050B, may not have been capable of sealing.

This is the first failure of E1100F050B since the elimination of the 10 CFR 50, Appendix J, Type C air test prior to the Fourth Refueling Outage (RFO4) in the Fall of 1994. The soft seat in check valve E1100F050B

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was installed in the fall of 1992. It passed its leak test during RFO4 in the fall of 1994 and in the Fifth Refueling Outage (RFO5) in the fall of 1996. The corresponding Division 1 valve, E1100F050A, had its soft seat replaced during RFO5. The primary failure mechanism of the E1100F050A was different and isolated from the primary failure mechanism found on E1100F050B this outage. E1100F050A failed in RFO5 due to seal degradation exacerbated by slight misalignment of the check valve disk. This was corrected by machining the hinge arm and replacing the soft seat. The repair of E1100F050A during RFO5 was deemed effective in correcting the failure and is further evidenced by its passing its as-found leak rate test in RFO6. Thus, based on the operating experience gained from E1100F050A and E1100F050B, it is anticipated that at least two full cycles of operation can be expected before soft seat replacement need be considered.

### CORRECTIVE ACTIONS:

Valve E1100F050B was refurbished with a new soft seat. Post maintenance leak rate was within Technical Specification acceptance limits. An evaluation of the soft seat examination results is being performed to assist in determining the periodicity for replacement of the soft seat.

### ADDITIONAL INFORMATION:

#### A. Failed Components

Component: Division 2 Residual Heat Removal (RHR)/Low Pressure Coolant Injection (LPCI)  
 System Inboard Isolation Testable Check Valve (E1100F050B)  
 Description: 24"-900# Full Exercisable Air Operated Swing Check Valve  
 Manufacturer: Anchor Darling  
 Type: Model 2229-3

#### B. Previous LERs On Similar Problems

LER 92-007-01, Exceeded Technical Specification Allowable Leakage for Containment Isolation Valves