

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 3 Docket Number (2) 0 5 10 10 10 12 14 19 Page (3) 1 of 0 4

Title (4) LPCI Minimum Flow Valve M03-1501-13A Auto Closure During Valve Operability Test Due to Unknown Cause

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)										
0	6	1	4	9	2	9	2	0	1	5	0	1	0	2	2	8	9	3	N/A	
										N/A										

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																					
POWER LEVEL (10)		20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.36(c)(1)	50.36(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)	73.71(b)	73.71(c)	Other (Specify in Abstract below and in Text)	
N														X									
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LICENSEE CONTACT FOR THIS LER (12)

Name Sang J. Rhee Technical Staff System Engineer Ext. 2371 TELEPHONE NUMBER AREA CODE 8 1 5 9 4 2 -2 9 2 10

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

SUPPLEMENTAL REPORT EXPECTED (14)

X Yes (If yes, complete EXPECTED SUBMISSION DATE) NO Expected Submission Date (15) 0 4 3 0 9 3

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

On June 14, 1992 at 1915 hours with Unit 3 at 50% rated core thermal power, while performing Dresden Operating Surveillance (DOS) 1500-1, LPCI System Valve Operability Test, the LPCI minimum flow valve, M03-1501-13A, spuriously auto closed when the outboard LPCI Injection valve, M03-1501-21A, was being returned to the normally open position. The M03-1501-21A valve had been closed first to cycle the M03-1501-22A valve (inboard LPCI Injection) in accordance with DOS 1500-1. The LPCI minimum flow valve was repositioned back to the open position immediately. The LPCI valve operability test was continued, and the LPCI minimum flow valve closed a second time when the A LPCI Loop Outboard Torus Cooling/Test Valve, M03-1501-38A was cycled. Review of this event has not identified an exact root cause of the LPCI minimum flow valve M03-1501-13A auto closure when the M03-1501-21A was returning to the normally open position. However, it is postulated that when the M03-1501-22A valve is cycled, an increase in pressure in the piping volume bordered by valves M03-1501-21A, M03-1501-38A, and A03-1501-25A may have resulted due to a small amount of leakage from the reactor recirculation system into this volume through LPCI testable injection check valve, A03-1501-25A. Closure of M03-1501-13A when M03-1501-38A was cycled is believed to be caused by the Torus Cooling Loop being depressurized during the valve operability surveillance, and flow being sensed by the minimum flow valve closure logic. Investigation is continuing concerning closure of M03-1501-13A when positioning M03-1501-21A. This event had minimal safety significance because the LPCI minimum flow valve would have auto opened under LPCI initiation logic if necessary under accident conditions. A similar event was reported by LER 92-12/050249.

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

LPCI Minimum Flow Valve M03-1501-13A Auto Closure During Valve Operability Test Due to Unknown Cause.

A. CONDITIONS PRIOR TO EVENT:

Unit: 3                                  Event Date: June 14, 1992                                  Event Time: 1915 Hours  
 Reactor Mode: N                                  Mode Name: Run                                  Power Level(S): 50%  
 Reactor Coolant System (RCS) Pressure: 957 psig

B. DESCRIPTION OF EVENT:

On June 14, 1992 at approximately 1915 hours with Unit 3 in Run mode at 50% rated core thermal power, while performing Dresden Operating Surveillance (DOS) 1500-1, LPCI System Valve Operability Test, the Low Pressure Coolant Injection (LPCI) [B0] minimum flow valve, M03-1501-13A auto closed when the outboard LPCI Injection valve, M03-1501-21A, was being returned to the normally open position. The LPCI minimum flow valve was repositioned back to the open position immediately. The Nuclear Station Operator (NSO) then notified the Station Control Room Engineer (SCRE) who notified the Shift Engineer. Work Request (WR) 09840 was initiated to investigate the LPCI minimum flow valve auto closure anomaly. The LPCI valve operability test continued, and the LPCI minimum flow valve closed a second time when the A LPCI Loop Outboard Torus Cooling/Test Valve, M03-1501-38A, was cycled. Similar spurious minimum flow valve movements were also observed while manipulating the B LPCI Loop Outboard Torus Cooling Test Valve, M03-1501-38B. It should be noted that minimum flow valve movement while manipulating the 38A(B) valves has been previously identified.

C. APPARENT CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(iv), which requires the reporting of any event or condition that results in the manual or automatic actuation of any Engineered Safety Feature (ESF).

Review of this event has not identified an exact root cause of the LPCI minimum flow valve, M03-1501-13A, auto closure when the LPCI injection valve M03-1501-21A was returning to the normally open position. The event has not recurred during subsequent operation of this equipment. However, it is postulated that when the inboard LPCI Injection M03-1501-22A valve is cycled an increase in pressure in the piping volume bordered by valves M03-1501-21A, M03-1501-38A, and A03-1501-25A may have resulted due to a small amount of leakage from the reactor recirculation [AD] system into this volume through LPCI injection testable check valve A03-1501-25A. Additionally, an air bubble may have existed in the sensing lines of the LPCI flow transmitter. Investigation is continuing and a supplemental report will be issued upon completion of LPCI Loop II system test.

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Upon further investigation/testing on July 2, 1992 under WR 09840, it was discovered that the volume between the M03-1501-38A(B) and the Inboard Torus Cooling/Test Valve M03-1501-20A(B) was depressurized during the previous LPCI System Valve Operability test. Since the LPCI System Valve Operability test is performed on a monthly basis, the completion of the previous surveillance leaves the volume of piping between the M03-1501-38A(B) and M03-1501-20A(B) depressurized. Subsequently, when the M03-1501-38A(B) valve is cycled, an instantaneous flow is apparently sensed by the flow element as the volume repressurizes, resulting in the closure of the LPCI minimum flow valve, M03-1501-13A(B).

D. SAFETY ANALYSIS OF EVENT:

The function of valves M03-1501-13A and -13B is to provide a minimum flow path for the LPCI pumps in order to prevent pump damage. The valves are repositioned based on system flow. At the time the valves went closed, the pumps were not operating and redundant low pressure emergency cooling systems were unaffected. The valves were repositioned back to open position immediately. Momentary closing of the LPCI minimum flow valves presented minimal potential for damaging the pumps as damage would occur only after prolonged operation with no minimum flow protection. Furthermore, the minimum flow valves would have automatically opened if necessary via LPCI initiation logic under accident conditions. Safety significance of this event is therefore considered minimal.

E. CORRECTIVE ACTIONS:

Investigation/testing was performed by the Operations Department, Instrument Maintenance Department, and Technical Staff to duplicate the event. Immediate corrective actions were: 1) Check the calibration of LPCI discharge header flow transmitter (FT 3-1501-58A) (found satisfactory), 2) Flush and vent the common high and low flow transmitter sensing lines to ensure free of air bubbles. Temporary Procedure Changes (TPC) 92-192 and 92-193 against DOS 1500-1 and DOS 1600-1, (Quarterly Valve Timing), were implemented on April 24, 1992. The changes consisted of a caution to warn the operators of the potential LPCI minimum flow valve auto closure when cycling the M02(3)-1501-38A(B). Further investigation will be performed to determine the root cause of the M03-1501-13A auto closure when M03-1501-21A was being returned to the normally open position. An investigation has been completed on the LPCI Loop I system and currently Technical Staff is waiting for availability of LPCI Loop II system to conclude the investigation. Result will be reported by the system Engineer (249-180-92-084S1).

F. PREVIOUS OCCURENCES:

LER/Docket Numbers Title

12-3-92-12/050249 LPCI Minimum Flow Valve M03-1501-13A Auto Closure During Valve Operability Test Due to Unknown Cause.

While performing DOS 1500-01, LPCI System Valve Operability Test, the LPCI minimum flow valve, M03-1501-13A, auto closed when the LPCI Torus Cooling/Test valve, M03-1501-38A, was cycled. Investigation suggested (see section C above) that the volume between the M03-1501-38A and M03-1501-20A was depressurized during the previous monthly LPCI System Valve Operability test. Subsequently, when M03-1501-38A was cycled, an instantaneous flow was sensed by the flow element as the volume repressurized resulting in the closure of the M03-1501-13A.

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12-2-92-08/050237 Unanticipated Valve LPCI Minimum Flow Valve MO2-1501-13B Closure Due to Spurious Master Trip Unit Spike During Calibration.

While performing Dresden Instrument Surveillance (DIS) 2300-3, High Pressure Coolant Injection Low Reactor Pressure Isolation Master Trip Unit (MTU) Calibration, the LPCI minimum flow valve, MO2-1501-13B inadvertently closed due to a spurious MTU spike.

12-2-91-26/050237 Unanticipated Valve Closures During 125 VDC Groud Checking Due to Procedure Deficiency.

While performing DOP 6900-06, 125 VDC Ground Detection, the LPCI minimum flow valve MO2-1501-13A inadvertently closed due to loss of power in the circuit. Although the circuit design causes this closure on de-energization of power, DOP 6900-06 did not state this would occur.

G. COMPONENT FAILURE DATA:

This event at this time is not classified as a component failure; therefore, this section is not applicable.