

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2 Docket Number (2) 0 5 0 0 0 2 3 7 Page (3) 1 of 0 5

Title (4) Unanticipated LPCI Minimum Flow Valve M02-501-13B Closure Due to Spurious Master Trip Unit Spike During Calibration

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	3	1	1	9	2	9	2	0	0	8	0	1	1	2	2	0	9	2	N/A	

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)									
POWER LEVEL (10)	0 9 2	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
		<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
		<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)						
		<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
		<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
		<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)							

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 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	
X	B	O	M	D	R	R	3	6	9	Y	

SUPPLEMENTAL REPORT EXPECTED (14)

[Yes (If yes, complete EXPECTED SUBMISSION DATE)] X [NO] Expected Submission Date (15)

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

On March 11, 1992 at 0610 hours, with Unit 2 at 92% power, Low Pressure Coolant Injection (LPCI) System II minimum flow valve M02-1501-13B inadvertently closed during Dresden Instrument Surveillance (DIS) 2300-03, High Pressure Coolant Injection Low Reactor Pressure Isolation Master Trip Unit (MTU) Calibration, for MTU 2-2391-01D. At 0547 hours the Instrument Maintenance Department (IMD) technician had obtained permission from Shift Supervision to perform DIS 2300-03. After 15 minutes of pre-warm up period, the IMD technician had selected both the COMMAND SWITCH (inner knob) and the CALIBRATION SELECT (outer knob) to position 11 for MTU 2-2391-01D calibration. When the inner knob was pressed to CALIBRATE, the IMD technician observed adjacent Low Pressure Coolant Injection minimum flow MTU 2-1501-92B to spike causing M02-1501-13B to spuriously close. The IMD technician immediately depressed the COMMAND SWITCH and notified Shift Supervision. After consultation with the Shift Supervisor, M02-1501-13B was repositioned and the DIS 2300-03 was satisfactory completed at 0650 hours. The root cause of this event was attributed to the knob for the channel select being loose on the shaft. The shaft had a groove worn into it from the sliding motion of the set screw. Safety significance was minimal because the minimum flow valve was immediately re-aligned. Spurious MTU spikes during calibration have not been a previous adverse trend.

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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:

Unanticipated LPCI Minimum Flow Valve M02-1501-13B Closure Due to Spurious Master Trip Unit Spike During Calibration.

A. CONDITIONS PRIOR TO EVENT:

Unit: 2	Event Date: March 11, 1992	Event Time: 0610 Hours
Reactor Mode: N	Mode Name: Run	Power Level: 92%
Reactor Coolant System (RCS) Pressure: 999 psig		

B. DESCRIPTION OF EVENT:

On March 11, 1992 at 0610 hours, with Unit 2 at 92% power, Low Pressure Coolant Injection (LPCI) [B0] System II minimum flow valve M02-1501-13B spuriously closed during performance of Dresden Instrument Surveillance (DIS) 2300-03, High Pressure Coolant Injection (HPCI) [BJ] Low Reactor Pressure Isolation Master Trip Unit (MTU) Calibration, for MTU 2-2391-01D. At 0547 hours the Instrument Maintenance Department (IMD) technician had obtained permission from Operations Shift Supervision to perform DIS 2300-03. After 15 minutes of pre-warm up period, the IMD technician had selected both the COMMAND SWITCH (inner knob) and the CALIBRATION SELECT (outer knob) (see figure 1 attached) to position 11 for MTU 2-2391-01D calibration. When the inner knob was pressed to CALIBRATE, the IMD technician observed adjacent LPCI minimum flow MTU 2-1501-92B to spike causing M02-1501-13B to spuriously close. The LPCI minimum flow MTU 2-1501-92B is installed at position 12 adjacent to HPCI MTU 2-2391-01D. The IMD technician immediately depressed the COMMAND SWITCH and notified the Shift Supervisor. After consultation with the Shift Supervisor, M02-1501-13B was repositioned and the IMD technician completed DIS 2300-03 satisfactorily at 0650 hours. Work Request 07621 was initiated to perform further investigation.

C. APPARENT CAUSE OF EVENT:

This report is submitted in accordance with 10CFR50.73 (a)(2)(iv), which requires the reporting of any unplanned Engineered Safety Feature (ESF) actuation.

To investigate the root cause of this event, the Master Calibration Unit was sent out to the Manufacturer (Rosemount) for technical evaluation. Upon completion of the evaluation, the apparent root cause of this event was attributed to the knob for the channel select being loose on the shaft. The shaft had a groove worn into it from the sliding motion of the set screw. Based on the manufacturer's evaluation, it appears that the IMD technician had selected the correct channel 11 as indicated, but it selected adjacent channel 12 due to a loose knob from the shaft. Consequently, when the inner knob was pressed to CALIBRATE, adjacent LPCI minimum flow MTU 2-1501-92B was spiked. Spurious MTU spikes during calibration have not been a previous adverse trend.

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D. SAFETY ANALYSIS OF EVENT:

The function of M02-1501-13B is to provide a minimum flow path for the system II LPCI pumps in order to prevent pump damage. The valve is normally open. The LPCI logic (see Figure 2 attached) provides for opening the minimum flow valve. Also, the system II LPCI pumps were not operating at the time and redundant low pressure emergency cooling systems were unaffected. The valve was repositioned back to the open position immediately. Momentary closing of the LPCI minimum flow valve presented minimal potential for damaging the pump as damage would occur only after prolonged operation with no minimum flow protection. Safety significance of this event is therefore considered minimal.

E. CORRECTIVE ACTIONS:

The immediate corrective action was to initiate WR 07621 to replace the existing MTU calibration unit for further inspection and failure analysis. On March 20, 1992, the MTU calibration unit was replaced by the IMD under WR 07621 and inspected by the System Engineer. For further failure mode analysis, the MTU calibration unit was shipped out to the vendor and evaluated. The IMD will continue to perform Analog Trip System (ATS) calibration on a monthly basis to verify proper function. A periodic inspection program of MTU calibration unit will be created by March 31, 1993 (237-180-92-04501S1).

F. PREVIOUS OCCURENCES:

LER/Docket Numbers Title

91-26/050237 Unanticipated Valve Closures During 125 VDC Ground Checking Due to Procedural Deficiency

While performing DOP 6900-06, 125 VDC Ground Detection, the LPCI minimum flow valve M02-1501-13B inadvertently closed. The corrective action to prevent recurrence was to perform a review of the LPCI, HPCI, and Core Spray logic to determine effects of circuit de-energization.

89-25/050237 Inadvertent Automatic Isolation of the High Pressure Coolant Injection System

During replacement of a HPCI low reactor pressure isolation MTU, an unplanned Primary Containment Group IV isolation [JM] occurred. To prevent this event, a review of HPCI system related DIS procedures was performed and appropriate precautionary statement was added to require care when removing these MTUs. Additionally, the IMD posted signs on all the Unit 2 and Unit 3 ATS panels warning that adjacent MTUs are vibration sensitive and require Shift Supervisor notification prior to MTU removal.

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
Rosemount Inc	Calibration Unit	710DU	710DUOCL

An industry wide NPRDS data base search revealed that 3 similar events on Calibration unit failures.

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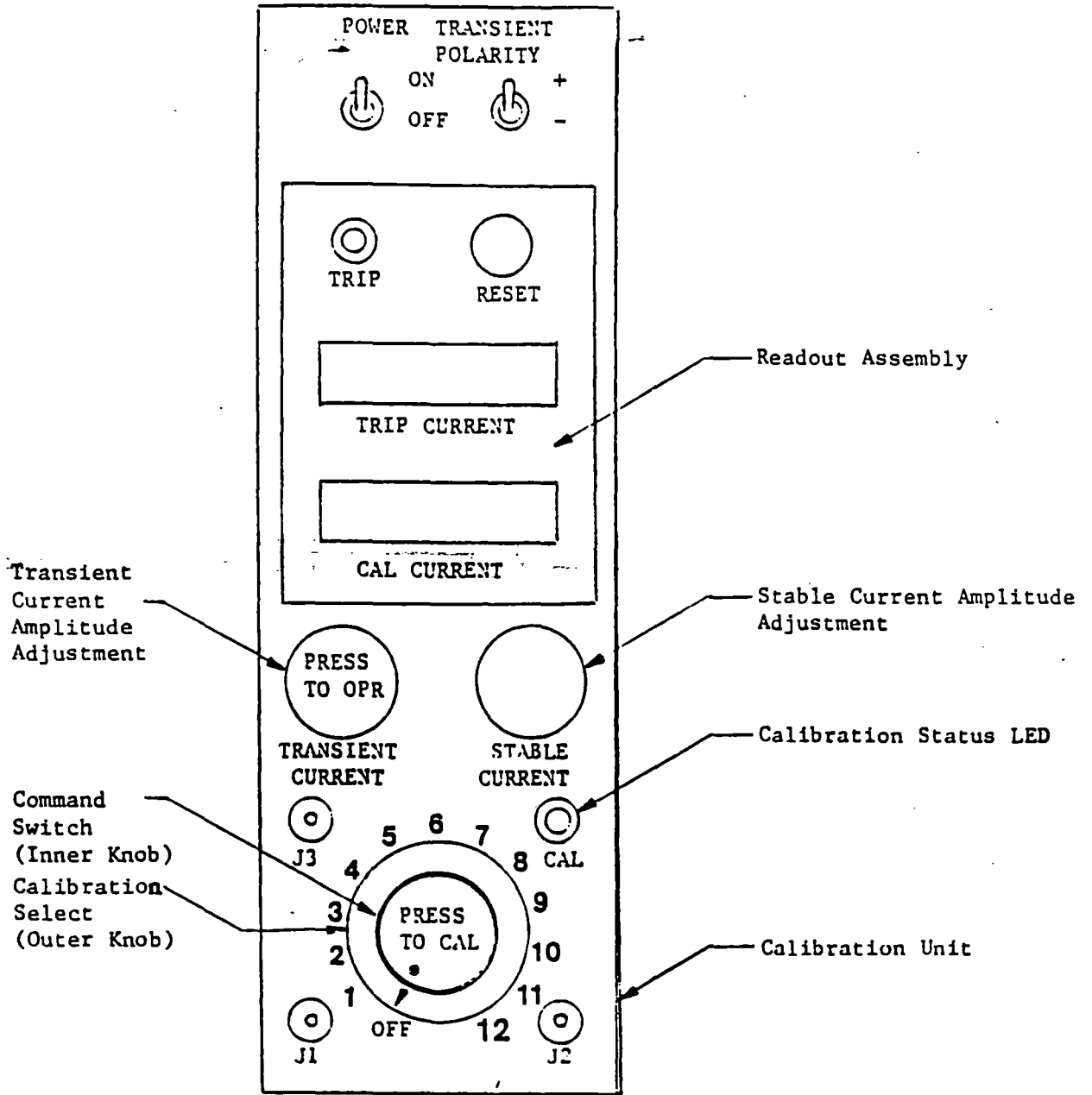


Figure 1. Calibration Unit and Readout Assembly Front Panel

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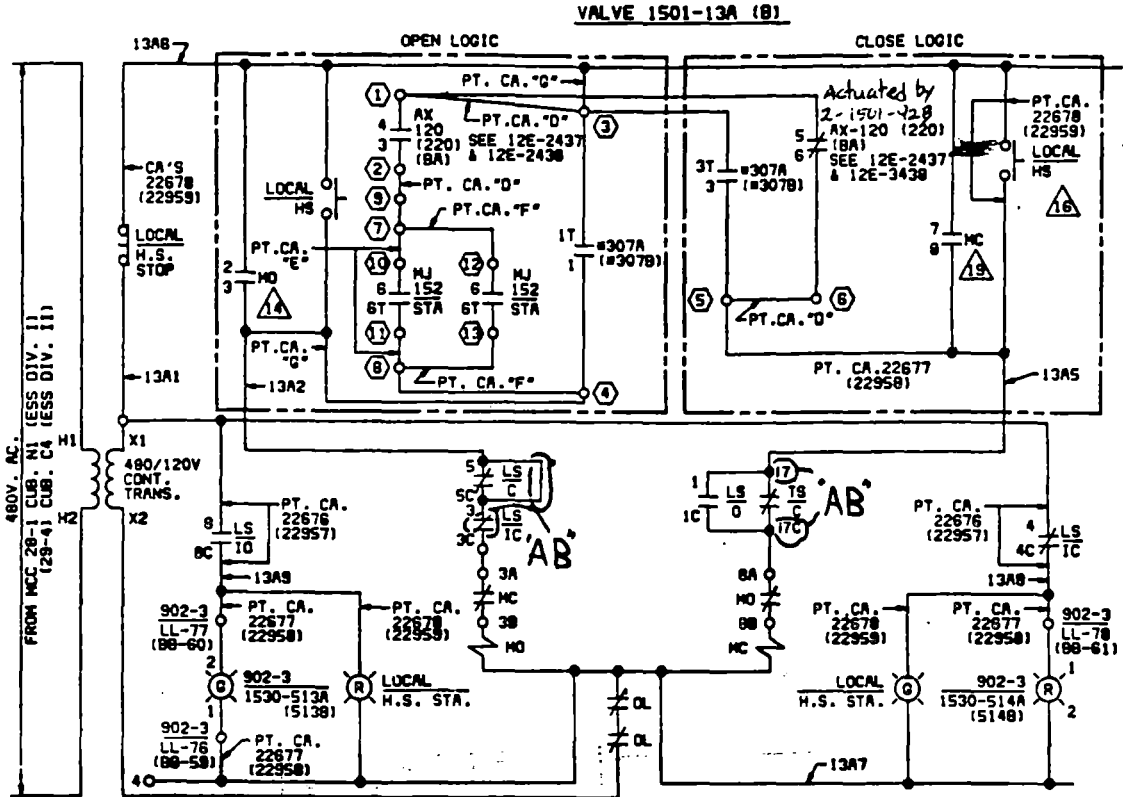
Year	Sequential Number	Revision Number
9 2	- 0 0 8	- 0 1

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0 | 5 | OF | 0 | 5

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WIRING DIAGRAM 12E-26740 (1501-13A)
12E-26800 (1501-13B)

(SEE NOTE 21) **"AB" FOR RECORD**
(Dwg 12E-2440 SW.1)

TB CODE	1501-13A			1501-13B		
	902-32	902-3	4KV SHOR BUS 23-1	902-33	902-3	4KV SHOR BUS 24-1
①	FF-50			FF-65		
②	FF-51			FF-68		
③		LL-74			88-57	
④		LL-73			88-58	
⑤		LL-75			88-58	
⑥	FF-52			FF-67		
⑦		LL-41			CC-88	
⑧		LL-42			CC-90	
⑨		LL-70			88-52	
⑩			(CLB.11) ZM-11			(CLB.6) ZM-11
⑪			(CLB.11) ZM-12			(CLB.6) ZM-12
⑫			(CLB.5) ZM-11			(CLB.8) ZM-11
⑬			(CLB.5) ZM-12			(CLB.8) ZM-12
CA. "D"		22674			22955	
CA. "E"		20902			20982	
CA. "F"		20908			20988	
CA. "G"		22677			22958	

Figure 2. Schematic for MOV 2-1501-13B