



Nebraska Public Power District

COOPER NUCLEAR STATION
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CNSS948160

May 27, 1994

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 94-002, Rev. 1, is forwarded as an attachment to this letter.

Sincerely,

R. L. Gardner
Plant Manager

RLG/nc

Attachment

cc: L. J. Callan
G. R. Horn
J. M. Meacham
R. E. Wilbur
V. L. Wolstenholm
D. A. Whitman
INPO Records Center
NRC Resident Inspector
R. J. Singer
CNS Training
CNS Quality Assurance

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Cooper Nuclear Station	DOCKET NUMBER (2) 0 5 0 0 0 2 9 8	PAGE (3) 1 OF 0 3
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TITLE (4) Unexpected Closure of CS Subsystem B Pump Minimum Flow Valve, An ESF Component, During Surveillance Testing Due to A Spurious Spike of The Flow Instrument

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	2	0	1	9	4	9	4	0	0	2	0	1	0	5	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0

OPERATING MODE (8) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)									
POWER LEVEL (10) 1 1 0 0	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)					
	20.405(a)(1)(i)	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)					
	20.405(a)(1)(ii)	50.36(c)(2)	<input type="checkbox"/>	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)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)						
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)						
	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)	
NAME Donald L. Reeves, Jr.	TELEPHONE NUMBER AREA CODE: 4 0 2 8 2 5 - 3 8 1 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR			
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO			0	8	2	6	9	4

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

On February 1, 1994, at approximately 11:00 pm, during Core Spray (CS) System valve operability surveillance testing, CS Subsystem B pump minimum flow bypass valve, CS-MOV-M05B, unexpectedly closed then automatically re-opened when CS-MOV-M026B, CS Subsystem B test return valve, was opened. An evaluation indicated that the valve had closed due to a spurious flow instrument spike that occurred when CS-MOV-M026B was opened. An attempt to re-create the actuation of the minimum flow valve was made; however, it remained in its normally OPEN position. Due to the unexplained occurrence of the spike, CS Subsystem B was declared inoperable pending an evaluation. During the monthly valve operability surveillance test conducted at approximately 2:00 am on April 27, 1994, a similar unexpected valve operation occurred. CS Subsystem B was again declared inoperable, pending an evaluation of the spike. When both events occurred, the plant was in operation at full power.

As reported in Rev. 0, the initial engineering evaluation of the February 1 event concluded that the spurious flow spike had most likely occurred due to air in the sensing lines for CS-FT-40B which had been taken out of service and calibrated earlier during the day. The final evaluation of that event, which was nearing completion when the second event occurred, had dismissed the air entrapment cause, indicating that the spiking that had been observed was most likely due to the piping configuration of CS Subsystem B. The second event supports that assessment. The root cause for these events will be reported in a supplement to this LER.

Following the initial event, the flow transmitter was backfilled and a calibration check was performed. No discrepancies were identified and CS Subsystem B was returned to service. As a result of the second event, further investigation activities were initiated. The corrective action taken to resolve the concern will be reported in a supplement to this LER.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
COOPER NUCLEAR STATION	05000298	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		94	-- 002 --	01	

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

A. Event Description

On February 1, 1994, at approximately 11:00 pm, during Core Spray (CS) System valve operability surveillance testing, CS Subsystem B pump minimum flow bypass valve, CS-MOV-M05B, unexpectedly closed then automatically re-opened when CS-MOV-M026B, CS Subsystem B test return valve, was opened. An initial evaluation of data from the Plant Management Information System (PMIS) indicated that CS-MOV-M05B closed due to an unexpected flow spike that occurred when CS-MOV-M026B was opened. The normally OPEN minimum flow valve closes upon actuation of the alarm unit, CS-AM-45B, at 1768 gpm. Due to the unexplained occurrence of the flow spike, CS Subsystem B was declared inoperable pending a further evaluation of the spike. During the monthly valve operability surveillance test conducted at approximately 2:00 am on April 27, 1994, a similar unexpected valve operation occurred. CS Subsystem B was again declared inoperable, pending an evaluation of the spike.

B. Plant Status

On both occasions, the plant was in normal operation at full power, conducting monthly surveillance testing of the CS System Motor Operated Valves (MOVs).

C. Basis for Report

The unanticipated, automatic actuation of an ESF component, reportable in accordance with 10CFR50.73(a)(2)(iv).

D. Cause

As reported in Rev. 0, the initial engineering evaluation of the February 1 event concluded that the spurious flow spike had most likely occurred due to air in the sensing lines for CS-FT-40B which had been taken out of service and calibrated earlier during the day. The final evaluation of that event, which was nearing completion when the second event occurred, had dismissed the air entrapment cause, postulating that the flow indication spike was most likely due to the piping configuration of CS Subsystem B. The second event supports that assessment. The root cause for these events remains under investigation and will be addressed in a supplement to this LER.

E. Safety Significance

CS-MOV-M05B is provided for pump protection. Upon system initiation, the valve remains open to provide minimum flow protection for the pump, closing when flow reaches 1768 gpm. The valve will reopen at 1340 gpm on decreasing flow. Flow through the minimum flow line is returned to the Suppression Pool.

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E. Safety Significance (continued)

On both occasions, following the unexpected closure of the valve due to the spurious flow transmitter spike, it automatically reopened since no actual system flow existed. While the valve operated unexpectedly, its operation was proper during the remainder of the surveillance test and it remained in its normally OPEN position. In both instances, the subsystem was declared inoperable pending further evaluation of the spurious flow spike. On each occasion, subsequent to demonstration of valve and system operability, the subsystem was declared operable.

F. Safety Implications

Pump minimum flow protection is required during an accident condition when the pump is in operation and reactor pressure is higher than CS system discharge pressure. These unexpected operations of the valve have occurred only during valve operability surveillance testing, not during system operation. An engineering evaluation of the condition has concluded that this condition would not affect the ability of the subsystem to function during an accident condition.

G. Corrective Action

Following the first event, the flow transmitter was backfilled and a calibration check was performed with no discrepancies identified. CS Subsystem B was vented to ensure that all air had been removed from the system and the system operability test was run satisfactorily. The subsystem was then returned to service. As a result of the second event, further testing and evaluation activities were initiated. These efforts are in progress at this time. Corrective actions taken to resolve this concern will be addressed in a supplement to this LER.

H. Similar Events

While problems have previously been experienced with the flow transmitter, none had resulted in unexpected operation of the minimum flow valve.