



Nebraska Public Power District

COOPER NUCLEAR STATION
P.O. BOX 98, BROWNVILLE, NEBRASKA 68321
TELEPHONE (402)825-3811
FAX (402)825-5211

CNSS948244

August 8, 1994

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 94-012 is forwarded as an attachment to this letter.

Sincerely,

R. L. Gardner
Plant Manager

RLG/nc

Attachment

cc: L. J. Callan
G. R. Horn
S. J. Jobe
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)

(See reverse for required number of digits/characters for each block)

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 (MNBB 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)
COOPER NUCLEAR STATIONDOCKET NUMBER (2)
05000298PAGE (3)
1 OF 4TITLE (4) Technical Specification Non-Compliance for the HPCI System Due to a Setpoint
Discrepancy Associated with the Low Steam Line Isolation Pressure Switches

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 NAME	DOCKET NUMBER
07	08	94	94	-- 012 --	00	08	08	94	FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
		20.405(a)(1)(i)		50.36(c)(1)	X	50.73(a)(2)(v)		73.71(c)	
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
		20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in	
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		Abstract below	
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		and in Text,	
								NRC Form 366A)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Donald L. Reeves, Jr.

TELEPHONE NUMBER (Include Area Code)

(402) 825-3811

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)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On July 8, 1994, while investigating surveillance test requirements for the High Pressure Coolant Injection (HPCI) System, a conflict was determined to exist between the established setpoint for the low steam line isolation pressure switch (127 psig) and the HPCI System operability requirement of >113 psig specified in Technical Specifications. Testing conducted on July 5 revealed the actual setpoints were 127 psig. When found, the plant was in Cold Shutdown with the Residual Heat Removal (RHR) System in the Shutdown Cooling mode of operation.

The root cause for non-compliance with the Technical Specification requirement was due to 1) incorrectly establishing the switch setpoint at a value based on ensuring that the HPCI System would not be isolated when the minimum surveillance test pressure (150 psig) was reached in lieu of establishing the setpoint to assure system operability upon reaching 113 psig, 2) a common acceptance that the disparate setpoint was due to instrument tolerances (setpoint accuracy or "stackup") and 3) a statement in the bases of the Technical Specifications regarding the intent of the specification that was misunderstood to mean that as long as there were no known problems with HPCI that would prevent its operation when reactor pressure reached 150 psig, it was permissible to proceed above a reactor pressure of 113 psig.

Corrective actions taken included replacement of the existing switches for ones of improved accuracy, and implementation of a setpoint change to achieve conformance with Technical Specification requirements. Licensed operator training regarding this change has been performed and surveillance testing procedures have been updated to reflect the new setpoint. The Reactor Core Isolation Cooling (RCIC) System was reviewed for a similar condition. The operability limit was determined to be satisfied.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
COOPER NUCLEAR STATION	05000298	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		94	-- 012 --	00	

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

A. Event Description

On July 8, 1994, during an investigation of surveillance test requirements for the High Pressure Coolant Injection (HPCI) System, a conflict was discovered between the established setpoint for the low steam line isolation pressure switches and HPCI System operability requirements specified in Technical Specifications. The specified setpoint for the low steam line isolation switches was 127 psig (required setpoint per Technical Specifications is ≥ 100 psig). Section 3.5.C.1 of the Technical Specifications requires the HPCI System to be operable with reactor pressure > 113 psig. Testing conducted on July 5 revealed the actual setpoints were 127 psig.

B. Plant Status

The plant was in the cold shutdown condition with Reactor Coolant System temperature of 112 degrees Fahrenheit and the Residual Heat Removal (RHR) System in the Shutdown Cooling mode of operation.

C. Basis for Report

This condition constituted a condition alone that would have prevented the HPCI System from performing its safety function at very low reactor pressure, in that the HPCI System would have isolated on decreasing reactor pressure at 127 psig and would not have been operable with reactor pressure between 127 psig and the Technical Specification requirement of > 113 psig. This condition was determined to be reportable on July 13 in accordance with the criteria prescribed by 10CFR50.73(a)(2)(v) following an evaluation of the setpoint and its conformance with the design basis for the HPCI System. In addition, since HPCI wouldn't have been operable between 113 and 127 psig, this condition also constitutes a condition prohibited by Technical Specifications, reportable in accordance with 10CFR50.73(a)(2)(i)(B).

D. Cause

The root cause for non-compliance with the Technical Specification requirement was due to 1) incorrectly establishing the switch setpoint at a value based on ensuring that the HPCI System would not be isolated when the minimum surveillance test pressure (150 psig) was reached in lieu of establishing the setpoint to assure system operability upon reaching 113 psig, 2) a common acceptance that the disparate setpoint was due to instrument tolerances (setpoint accuracy or "stackup") and 3) a statement in the bases of the Technical Specifications regarding the intent of the specification that was misunderstood to mean that as long as there were no known problems with HPCI that would prevent its operation

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

D. Cause (Continued)

when reactor pressure reached 150 psig, it was permissible to proceed above a reactor pressure of 113 psig to at least 150 psig where the HPCI System was to be tested.

During development of the Design Criteria Document (DCD) for the HPCI System, the discontinuity between the operability requirement of >113 psig and the switch setpoint was researched. Based on discussions with and information supplied by the NSSS vendor it was considered not to be a safety concern. Since not perceived as such, it was considered a Technical Specification cleanup item and was thus improperly classified in the DCD.

E. Safety Significance

Technical Specification surveillance requirements specify that the HPCI pump shall be demonstrated to be capable of delivering at least 4250 gpm for a system head corresponding to a reactor pressure of 1000 to 150 psig. This surveillance requirement does not address the operability requirements for a reactor pressure of 113 psig. With respect to the lower limit of 150 psig, a statement in the Technical Specification basis specifies that, "the HPCI System is not designed to operate until reactor pressure exceeds 150 psig and is automatically isolated before the reactor pressure decreases below 100 psig. It is the intent of this specification to assure that when the reactor is being started up from a Cold Condition, the HPCI System is not known to be inoperable."

The safety aspects of having the HPCI isolation setpoint above 113 psig, and in particular as high as 150 psig, are discussed in USAR, Chapter VI, Section 5.2.5. Specifically, "The maximum vessel pressure against which the Residual Heat Removal (RHR) pumps must deliver some flow is determined by the required overlap with HPCI which has a low pressure cut off for the HPCI turbine at about 150 psig." Thus, in order for the HPCI isolation setpoint to be at about 150 psig, the RHR System must be capable of delivering a flow rate equal to the HPCI requirement of 4250 gpm to the vessel against a reactor pressure of 150 psig.

Calculations demonstrate that the RHR System is capable of supplying more than 4250 gpm to the vessel when the vessel pressure is at 150 psig. Additional core cooling capability is achieved at low reactor pressure through automatic initiation of the Core Spray System with a flow rate of 4720 gpm against a system head corresponding to a differential pressure of 113 psi. Thus the safety significance of this condition is minimal.

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

F. Safety Implications

The plant conditions under which this low pressure isolation setpoint discrepancy could have been a concern would have been during plant operation with reactor pressure greater than 113 but less than 127 psig. As noted above, calculations demonstrate the capability of the RHR System to deliver a minimum of 4250 gpm, the required HPCI System flow rate, to the reactor vessel at a vessel pressure of 150 psig. Consequently, the safety implications of this condition during operation were minimal. With the plant in a Cold Shutdown condition, as it was upon recognizing the implications of this setpoint discontinuity, this discrepancy posed no safety implications.

G. Corrective Action

New switches of a narrower range and improved repeatability were procured and installed and a setpoint change consistent with Technical Specification requirements was implemented. The established setpoint should assure compliance with both the Technical Specification switch setpoint limit of ≥ 100 psig and the HPCI System operability limit of > 113 psig. Licensed operator training regarding this change has been performed and surveillance testing procedures have been updated to reflect the new setpoint. The potential for a similar discontinuity between the actual setpoints for the Reactor Core Isolation Cooling (RCIC) low pressure isolation and its required operability at > 113 psig was evaluated. The operability limit was determined to be satisfied.

H. Similar Events

In 1991, LER 91-006 was submitted addressing a Technical Specification setpoint non-compliance with design basis requirements for the 4160 volt loss of voltage relays. In that situation, the Technical Specification limits were determined to be inaccurate and did not reflect design basis requirements. While not identical, this condition is considered similar.