



Nebraska Public Power District

COOPER NUCLEAR STATION
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CNSS933128

June 1, 1993

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 93-019, Revision 0, is forwarded as an attachment to this letter.

Sincerely,

R. L. Gardner
Plant Manager

RLG/ju

Attachment

cc: J. L. Milhoan
G. R. Horn
J. M. Meacham
R. E. Wilbur
V. L. Wolstenholm
D. A. Whitman
INPO Records Center
NRC Resident Inspector
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Cooper Nuclear Station	DOCKET NUMBER (2) 0 5 0 0 0 2 1 9 8	PAGE (3) 1 OF 0 1 4
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TITLE (4)
Nonconservative Testing Methodology Discovered During Local Leak Rate Testing

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	5	0	1	9	3	9	3	—	0	1	9	0	0
0	5	0	0	1	9	0	0	0	0	6	0	1	9
0	5	0	0	0	0	0	6	0	0	1	9	0	3

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)											
POWER LEVEL (10) 0 1 0 1 0	20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.7(b)		
	20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)			73.7(c)		
	20.405(a)(1)(ii)			50.36(c)(2)			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)			50.73(a)(2)(viii)(A)					
	20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)					
	20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)									
NAME John R. Myers							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 NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

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

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

On May 1, 1993, upon evaluation of local leak rate test results, it was determined that the previously accepted methodology for performing Appendix J Type C tests for a limited number of flexible wedge gate valves could not be relied upon to be either equivalent to or more conservative than testing in the accident direction. Type C testing has previously been performed for several inboard primary containment isolation valves such that pressure was applied in a direction opposite to the accident direction.

The testing methodology was based on a non-conservative interpretation of past information supplied by the valve manufacturer. Information provided by the valve manufacturer indicated that testing in the reverse direction would not be expected to affect test results. Recent test results indicate that reverse direction testing of flexible wedge gate valves may not in all cases provide equivalent or conservative results. Since the testing methodology may not be equivalent or conservative, past test results may not be completely valid.

Testing has been conducted for those valves which have not previously been tested in the accident direction but which can be so tested. Valves which cannot be tested in the accident direction are being evaluated to determine the acceptability of the testing methodology. The manufacturer has recently been able to qualify the testing of several valves in the reverse direction using current analytical methods. Valves for which the testing method cannot be qualified will have modifications to allow appropriate testing, or exemptions from Appendix J testing requirements will be requested.

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

A. Event Description

On May 1, 1993, upon evaluation of local leak rate test results, it was determined that the previously accepted methodology for performing Appendix J Type C tests for a limited number of flexible wedge gate valves could not be relied upon to be either equivalent to or more conservative than testing in the accident direction. Appendix J allows testing in the reverse direction only if it produces results which are equivalent to or more conservative than testing in the accident direction. Type C testing has previously been performed for several inboard primary containment isolation valves such that pressure was applied in the reverse direction. Based on the results of the recent tests, it has been determined that reverse direction testing of flexible wedge gate valves may not in all cases provide equivalent or conservative test results. Since the testing methodology may not be equivalent or conservative, past test results may not be completely valid.

The 65 inboard primary containment isolation valves can be divided into four categories:

1. Valves whose past test configuration has been in the accident direction (18 valves).
2. Valves for which testing in the reverse accident direction is equivalent to or more conservative than testing in the accident direction (23 valves).
3. Valves which can be tested in the accident direction, but which were not tested in this manner prior to the 1993 outage (8 valves).
4. Valves which cannot be tested in the accident direction without piping configuration changes, and for which reverse direction testing had not been verified to be equivalent to or more conservative than accident direction testing. (16 valves).

Only the valves in category 3 and 4 are of concern.

B. Plant Status

Shutdown for the 1993 Refueling outage.

C. Basis for Report

Since the test methodology cannot be ensured to have met the requirements of Appendix J, the requirements of Technical Specification 4.7.A.2.f were not met, a condition reportable in accordance with 10CFR50.73(a)(2)(i). Additionally, since the testing methodology may not be equivalent to or more conservative than testing in the accident direction in all cases, past test results may not be completely valid.

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

C. Basis for Report - (continued)

This is a condition that alone could have prevented the fulfillment of the safety function of systems required to mitigate the consequences of an accident, reportable in accordance with 10CFR50.73(a)(2)(v).

D. Cause

This condition is the result of a non-conservative interpretation of past information supplied by the valve manufacturer. In response to questions about the acceptability of testing methods resulting from a 1973 change to Appendix J which deleted the prior exemption and applied Appendix J criteria to smaller valves, information was requested from each manufacturer concerning the performance of their valves when tested in the reverse direction. Information provided by this valve manufacturer indicated that testing in the reverse direction would not be expected to affect test results, although the manufacturer stated that an unqualified answer could not be provided. Recent test results indicate that reverse direction testing of flexible wedge gate valves may not in all cases provide equivalent or conservative results.

E. Safety Significance

Since testing for some flexible wedge gate valves was not conducted in a manner which ensured that leakage in the accident direction would have been detected and corrected during local leak rate testing, the plant could potentially have operated with containment leakage in excess of the Technical Specification allowable limit, due to the failure of a valve in the penetration. Each penetration is provided with an outboard valve, which is subjected to testing in the accident direction. For leakage to have actually exceeded the allowable leakage, an inboard valve would have had to leak excessively and the outboard valve would have had to fail to close correctly. Maximum pathway leakage has been utilized for start up criteria, thus total penetration leakage was utilized for those valves which were tested simultaneously.

Using current analytical methods, the manufacturer has recently evaluated several of the valves and has been able to qualify their testing in the reverse direction as equivalent to or more conservative than testing in the accident direction. Based on this qualification, the classification of seven valves as described in Section A has been changed from Category 4 to Category 2.

F. Safety Implications

The safety implications associated with this method of testing are fully addressed above.

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TEXT: If more space is required, use additional NRC Form 366A's (17)

G. Corrective Action

Testing has been conducted for those valves which have not previously been tested in the accident direction but which can be so tested.

Information provided by other valve manufacturers was reviewed for similar concerns. This information was supplemented as required to further document the basis for testing methodology.

Those valves which cannot be tested due to a lack of test connections or inboard isolation devices are being evaluated by the valve manufacturer using current analytical methods to determine the acceptability of the testing methodology. For those valves which cannot be qualified by the manufacturer for the test methodology, physical modifications will be made to allow appropriate testing or exemptions from Appendix J testing requirements will be requested. The test procedures will be revised to incorporate accident direction testing where appropriate.

H. Similar Events

None.