



## Nebraska Public Power District

COOPER NUCLEAR STATION  
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CNSS948413

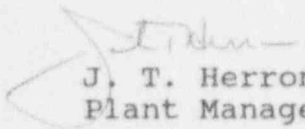
November 15, 1994

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 94-011, Revision 1, is forwarded as an attachment to this letter.

Sincerely,

  
J. T. Herron  
Plant Manager

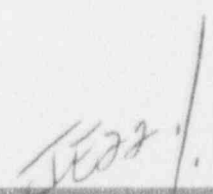
JTH/nc

Attachment

cc: L. J. Callan  
G. R. Horn  
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R. G. Jones  
R. A. Sessoms  
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220060

9411250124 941115  
PDR ADOCK 02000298  
S PDR



## 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 (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)  
COOPER NUCLEAR STATIONDOCKET NUMBER (2)  
05000298PAGE (3)  
1 OF 5TITLE (4) Primary Containment Penetration Design and Testing Deficiencies Discovered  
During Design Basis Reconstitution Activities

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
06	02	94	94	-- 011 --	01	11	15	94	FACILITY NAME	DOCKET NUMBER

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)
POWER LEVEL (10)		0	20.405(a)(1)(i)	50.36(c)(1)	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 Abstract below and in Text, NRC Form 366A)
			20.405(a)(1)(iv)	X 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	TELEPHONE NUMBER (Include Area Code)
Donald L. Reeves, Jr.	(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 June 2, Primary Containment penetration X-218 was inspected and determined to not be in compliance with design requirements and not being leak rate tested (LLRT) as required by 10CFR50 Appendix J. A similar deficiency was found with penetrations X-209A thru D on June 6. These discrepancies were discovered during a walkdown of all Primary Containment penetrations performed during the design basis reconstitution of the Primary Containment System. Due to their discovery, Primary Containment was declared inoperable on June 7. Further investigation revealed concerns with approximately 100 penetrations, including drawing deficiencies, penetration barrier deficiencies, piping system weld classification and NDE record deficiencies and additional LLRT deficiencies. When these deficiencies were discovered, the plant was in Cold Shutdown and Primary Containment Integrity was not required.

The root causes for the failure to identify and promptly resolve the numerous containment penetration design discrepancies were determined to be due to organizational and programmatic deficiencies associated with a compliance based engineering assessment approach and lack of an aggressive Appendix J program management function.

Corrective actions to resolve the containment penetration discrepancies have been taken and completed. Further corrective actions are being taken to address and resolve the root causes of the organizational and programmatic deficiencies that resulted in the failure to identify and promptly resolve the numerous containment penetration discrepancies that were found.

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 5
		94	-- 011 --	01	

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

A. Event Description

On May 18, 1994, a walkdown of all Primary Containment penetrations was initiated as part of the design basis reconstitution of the Primary Containment System. The schedule for this effort had been accelerated due to a commitment made in response to NRC Inspection Report 93-17, Violation II.C, wherein the District stated that, "a detailed review of all containment penetrations and their associated Appendix J testing requirements will be performed during the next operating cycle and necessary changes, if any, implemented prior to startup from the next refueling outage." Containment penetrations were to be inspected, validated to existing configuration documents, and compared to existing design requirements. On June 2, with the plant in Cold Shutdown, an inspection of penetration X-218 determined that the configuration document was incorrect in that the penetration was indicated to be a spare (pipe with a welded cap). In fact, the penetration was actually an electrical penetration with a gasketed valve and an elastomeric compound seal. It was also determined that penetration X-218 had not been local leak rate tested (LLRT) as required by 10CFR50 Appendix J. On June 6, electrical penetrations X-209A thru D, which were of similar configuration, were also determined to be unqualified barriers.

Based on these deficiencies, and additional indications from the walkdown team that more penetrations would be affected, Primary Containment was declared inoperable on June 7, 1994, at 12:15 pm. An investigative team was formed to determine the extent of the problem, to identify corrective actions required to restore system operability, and to perform a formal root cause investigation. The investigation revealed the following types of deficiencies involving approximately 100 penetrations:

1. A drawing which included numerous safety-related components was not properly classified nor maintained, resulting in several safety-related containment isolation valves not being represented.
2. Leak rate testing required by Appendix J had not been performed for all of the required containment penetrations.
3. Redundant containment isolation provisions (e.g., valving or a closure device such as a cap) were not provided for:
  - a) Vent and drain piping segments installed between the containment boundary and the first of two isolation valves located outside of containment, or
  - b) Process lines with single manual isolation valves, or
  - c) Thermocouple leads which had been routed through internally sealed piping and open valves.

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

A. Event Description (continued)

- 4) NDE had not been performed or related documentation could not be located for approximately 300 original welds in piping systems associated with 46 containment penetrations. Additionally, these piping system welds had not been appropriately classified.

B. Plant Status

These discrepancies were discovered while the plant was in Cold Shutdown. At the time of discovery, Primary Containment integrity was not required.

C. Basis for Report

These non-qualified Primary Containment penetration installations are reportable in accordance with 10CFR50.73(a)(2)(ii) as a condition that resulted in the plant being outside of its design basis. Additionally, due to the failure to properly identify and perform local leak rate testing as required by Appendix J, this condition is also reportable in accordance with 10CFR50.73(a)(2)(i) as a condition prohibited by Technical Specifications.

D. Cause

The root causes for the failure to identify and promptly resolve the numerous containment penetration design discrepancies were found to be due to the following organizational and programmatic deficiencies:

1. Lack of management commitment to program implementation in that the organizational focus for problem identification and resolution was primarily compliance based. Engineering evaluations to assure achievement of safety functions were generally based on commitments and assessments addressed in Technical Specifications and the USAR. Management expectations and standards for assuring that program implementation and design achieved the intended safety mission were not effectively communicated. Further, action was not taken by management to assure common understanding of such expectations and standards. As a result, potential safety problems were not always appropriately addressed.
2. Inadequate program monitoring and management of the Appendix J test program, in that program management was not effective in resolving problems. Further, inadequate attention to emerging problems also resulted in inadequate prioritization of work.

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

E. Safety Significance

The majority of the containment penetrations that did not comply with design requirements had been successfully tested at design pressure during the Primary Containment ILRT, last performed in 1991. As-found testing was performed on penetrations which had not previously been subjected to ILRT or LLRT test pressure and for which as-found testing was determined to be practicable. With the exception of IA-CV-65CV, the Drywell Pneumatic Supply Check Valve in penetration X-22, testing demonstrated that the leak rates were within Technical Specification limits. Type C LLRT for this penetration revealed that it could not be pressurized.

Dose calculations were performed to assess the potential off-site and on-site radiological dose consequences due to leakage from penetration X-22 during the 30 days following a design basis accident. Using conservatively estimated leakage through the penetration and using realistic release assumptions, the off-site dose was found to be within 10CFR Part 100 limits and the Control Room operator thyroid dose was found to be within regulatory limits. This result, combined with the results of a Probabilistic Safety Assessment, concluded that this containment penetration leak pathway had minimal safety significance.

The cumulative effects of this condition, combined with the Secondary Containment deficiency addressed in LERs 93-011 and 93-027, Rev. 1 and the Control Room Envelope pressurization deficiency addressed in LER 94-006 Rev. 1 have been evaluated. The evaluation was based upon more realistic conditions concerning filter efficiencies, mixing and Secondary Containment actuation delay. As reported in LER 93-027, Rev. 1, under high wind conditions, i.e. >25 mph, due to the potential for Secondary Containment pressure being less negative than required by Technical Specifications (-0.25 inches water gauge), unmonitored exfiltration could have occurred. Under high wind conditions, however, as a result of dispersion, on-site and off-site dose consequences would have been negligible. The evaluation concluded that these cumulative effects had minimal safety significance.

With regard to the piping welds for which NDE records could not be located, five (5) butt welds showed rejectable indications. While an evaluation of the welds resulted in finding them acceptable, each was repaired or removed. The safety significance of the drawing deficiency was of minimal consequence.

F. Safety Implications

Upon discovery of these conditions, the plant was in Cold Shutdown and Primary Containment Integrity was not being (and was not required to be) maintained. The safety implications of these conditions would be most significant following a design basis accident from 100 percent power.



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G. Corrective Action

Walkdowns of Primary Containment penetrations for Design Basis Reconstitution purposes were performed from May 18 through June 5, 1994. As a result of the identified discrepancies, fifteen design changes were developed and implemented. These actions included the addition of test connections, installation of welded caps on spare penetrations, complete redesign of several containment isolation barriers, and installation of caps on vents, drain lines and test connections.

As previously discussed in Section E, as-found testing was performed for penetrations which had not previously been Type A, B, or C tested and for which as-found testing was determined to be practicable. The total as-found leak rate for these penetrations, except X-22 which contained drywell pneumatic supply check valve IA-CV-65CV, was 26 SCFH. With regard to penetration X-22, leakage through IA-CV-65CV was significant, preventing pressurization of the penetration using normal leak rate testing apparatus. Following penetration modifications and modification of penetration X22, including replacement of IA-CV-65CV, the total Primary Containment as-left leak rate was less than the Technical Specification limit.

Penetrations were identified for which appropriate records could not be found to ensure that the piping welds were of an equivalent quality level to the containment. A design change was completed on forty-seven penetrations that upgraded the piping quality to meet this requirement. The District will update the CNS ASME Section XI Inservice Inspection Program prior to the 1995 outage to include these piping segments. This action will ensure that the quality level of these piping segments will be maintained in the future.

Corrective actions in progress but which remain to be completed include:

1. Defining a clear engineering safety mission that will emphasize assurance of the safety function as well as compliance with design and licensing bases.
2. Formalizing establishment of an Appendix J program management function.

H. Similar Events

Programmatic concerns associated with Primary Containment penetrations and Appendix J requirements that have recently been reported include:

LER 93-019 Nonconservative Testing Methodology Discovered During Local Leak Rate Testing

LER 93-020 Hydrogen/Oxygen Monitors Not Subjected to Primary Containment Testing Requirements