



Nebraska Public Power District

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

CNSS948141

May 11, 1994

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 94-006 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)

(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 STATION

DOCKET NUMBER (2)  
05000298

PAGE (3)  
1 OF 4

TITLE (4) Inoperable Control Room Emergency Filter System

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
04	11	94	94	-- 006 --	00	05	11	94	FACILITY NAME	DOCKET NUMBER 05000
									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)						
POWER LEVEL (10) 100	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)	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)	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 (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)

X YES (If yes, complete EXPECTED SUBMISSION DATE).  
NO  
EXPECTED SUBMISSION DATE (15): MONTH 07, DAY 15, YEAR 94

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

On April 11, 1994, the Control Room Emergency Filter System failed post maintenance testing for planned maintenance of a door comprising part of the Control Room pressurization boundary. During the following 7 days, door seals were adjusted or replaced and smoke tests performed to identify leaks in the Control Room envelope, and repairs implemented. Although system performance was improved, acceptance criteria still could not be met. Regulatory discretion was granted by the NRC providing a 14 day extension to restore the Control Room Emergency Filter System operability. A significant number of additional leaks in conduits and cable trays were repaired. Post maintenance testing was completed satisfactorily and the Control Room Emergency Filter System was declared operable on April 30, 1994 at 2:52 pm.

The apparent cause of this event was inadequate design of the system, resulting in marginal design capacity of the emergency filter booster fan. Contributing factors include door seal leakage, imbalance of the system, additional leak paths resulting from modifications or maintenance, and a leak in the sensing line for Turbine Building ventilation controls. Investigation of this event is continuing, and will be discussed in a supplement to this LER.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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COOPER NUCLEAR STATION	05000298	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
		94	-- 006 --	00
				2 OF 4

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

A. Event Description

On April 11, 1994, the Control Room Emergency Filter System was declared inoperable at 1:47 pm for planned maintenance of the latch on door H300. This door is part of the Control Room pressurization boundary. Maintenance on the door latch required the door to be open, thus rendering the system incapable of performing its safety function. Technical Specification 3.12.A LCO was entered, which allows continued plant operation for 7 days with the system out of service. Upon completion of maintenance, Surveillance Procedure (SP) 6.3.17.18, Control Room Envelope Pressurization Test, was performed to verify capability of the ventilation system to maintain the Control Room envelope at a pressure greater than atmospheric pressure. The acceptance criteria could not be met with the Emergency Filter System in operation.

During the following 7 days, door seals were adjusted or replaced and local smoke tests were performed to identify leaks in the Control Room envelope. In addition to door seals, leaks were found and repaired in conduits and cable tray seals. These efforts improved the results of the surveillance test in that the system could maintain positive pressure in the Control Room with respect to adjacent plant areas. However, the system could not maintain positive pressure in the Control Room with respect to atmosphere when the Turbine Building ventilation system was running at its normal pressure of -0.25 in. wg with respect to atmosphere. When the non-safety related Turbine Building ventilation system was operated at -0.05 in. wg pressure, the system was able to maintain positive pressure in the Control Room envelope with respect to all adjacent areas, including outside atmosphere.

Regulatory discretion was granted by the NRC providing a 14 day extension to the LCO requirement to allow additional time to restore the system to operable status. The basis for this extension was the ability of the system to maintain positive pressure with the Turbine Building ventilation system operating at -0.05 in. wg. Compensatory actions were taken to comply with the requirements of the Notice of Enforcement Discretion (NOED).

During the period allowed for by the NOED, a systematic approach was developed to smoke test potential leak paths in the Control Room envelope. A significant number of additional leaks were discovered in conduits and cable trays. Special sealing equipment and services were procured to assist in sealing irregular equipment configurations.

A Special Test Procedure (STP) evaluated the possible interaction between the Control Room envelope and the plant areas that share common boundaries. The results showed that, upon completion of the sealing efforts, the system was capable

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

A. Event Description (continued)

of maintaining the Control Room envelope at a positive pressure with respect to all adjacent plant areas and the outside atmosphere under all design basis accident bounding conditions.

Surveillance Procedure 6.3.17.18 was subsequently passed on April 28, 1994, and the Control Room Emergency Filter System was declared operable on April 30, 1994 at 2:52 pm.

B. Plant Status

The plant was in normal power operation at approximately 100 percent power at the time of this event.

C. Basis for Report

The inability of the Emergency Filter System to perform its required function is reportable as a condition that could have prevented the fulfillment of a safety function of a system needed to mitigate the consequences of an accident, reportable in accordance with 10CFR50.73(a)(2)(v). Investigation into past testing is continuing, and the conclusions with regard to past system operability will be discussed in a supplement to this LER.

D. Cause

The apparent cause of the failure of the Control Room Emergency Filter System to maintain the Control Room envelope at the required positive pressure is inadequate design of the system, resulting in marginal design capacity of the emergency filter booster fan. Contributing factors that are being investigated are previous testing anomalies, door seal leakage, imbalance of the system, additional leak paths resulting from modifications or maintenance, doors opening in the wrong direction, and Turbine Building ventilation control discrepancies.

Additional investigation into the cause is being pursued and will be further discussed in a supplement to this LER.

E. Safety Significance

The Control Room Emergency Filter System, a single train safety system, is designed to protect personnel in the Control Room from excessive radiation exposure in the event of a Design Basis Accident. During operation of the system in the emergency mode, incoming air to the Control Room is filtered by high efficiency particulate air (HEPA) filters and by charcoal adsorbers to reduce the airborne radiological

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E. Safety Significance (continued)

exposure to Control Room personnel. The system is designed to automatically start and alarm if airborne radiation is detected in the Control Room air intake. The system will maintain the Control Room pressure positive relative to the Control Building and outside atmosphere. Should the system not pressurize the Control Room, infiltration would be a concern. Health Physics personnel would monitor the radiation exposure of personnel on site during any significant radiological incident.

F. Safety Implications

The effect of the loss of Control Room pressurization is most significant should a Design Basis Accident occur during power operation. As such, there are no safety implications beyond those discussed in Section E above.

G. Corrective Action

Door seals in the Control Room envelope were repaired, penetrations were sealed, and the adjacent building ventilation control systems inspected and repaired. Upon completion of these activities, testing of the Control Room Emergency Filter System indicated a pressure of +0.07 in. wg in the Control Room and +0.06 in. wg in the Cable Spreading room, satisfying the system pressurization requirements. Previous tests had achieved results in the range of +0.02 to +0.05 in. wg.

The frequency of performing SP 6.3.17.18 has been increased to ensure that the existing Control Room Emergency Filter System can maintain the required positive pressure until appropriate corrective actions are implemented.

Additional corrective actions will be based upon the ongoing investigation, and will be discussed in a supplement to this LER.

H. Similar Events

There are no known similar events which have been previously reported. Previous test failures have occurred during outages or when the system was declared inoperable for maintenance, and the system was restored within the time allowed by the LCO.