



Nebraska Public Power District

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

NLS940049

October 3, 1994

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 94-020 is forwarded as an attachment

Sincerely,

R. L. Gardner

R. L. Gardner
Plant Manager

RLG/nr

Attachment

cc: L. J. Callan w/attachment
G. R. Horn w/attachment
J. H. Mueller w/attachment
R. G. Jones w/attachment
R. A. Sessoms w/attachment
R. E. Wilbur w/attachment
D. A. Whitman w/attachment
INPO Records Center w/attachment
NRC Resident Inspector w/attachment
R. J. Singer w/attachment
CNS Training w/attachment
CNS Quality Assurance w/attachment

130046

9410130333 941003
PDR ADOCK 05000298
S PDR

IF22
11

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 20555-0007, 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) Installation of Non-Essential Elapsed Time Meters in Essential
Control Room HVAC and Standby Gas Treatment Systems

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
09	01	94	94	-- 020 --	0	10	03	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)				
POWER LEVEL (10)	000	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)	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
Gautam Sen, Senior Staff Nuclear Licensing & Safety Eng.
TELEPHONE NUMBER (Include Area Code)
(402) 825-5815

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
N/A	N/A	N/A	N/A	No					

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)

Abstract

On September 1, 1994, during the Design Criteria Document development, a review of open items associated with the Control Room Ventilation System revealed that an Elapsed Time Meter (ETM) which had been purchased non-essential had been installed in 1976 in the essential control circuits for the Control Room Emergency Supply Fan, HV-MOT-(VF-C-1A) with a design change. A review of the design change further revealed that identical ETMs were installed in an identical fashion in the logic circuits for Standby Gas Treatment System exhaust fans SGT-MOT-(EF-R-1E and SGT-MOT-(EF-R-1F). The ETMs were wired in parallel with the fan motor, and should they fail, the control power fuse for the fan could blow, preventing fan start or causing fan trip.

On September 3, 1994, the Nuclear Engineering Department determined that the installed ETMs could not be qualified. At 4:30 pm, the Control Room Emergency Bypass Filter System and the Standby Gas Treatment System were declared inoperable.

Per NUREG-1022, the cause of this event is attributed to defective procedures at the time of installation.

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 (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)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
COOPER NUCLEAR STATION		05000298		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
				94	-- 020 --	0	

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

Plant Status

On September 1, 1994, when this condition was discovered, the plant was in cold shutdown with no fuel handling in progress.

Event Description

On September 1, 1994, a review of the Control Room Ventilation System Design Criteria Document revealed, in fact, that a non-essential Elapsed Time Meter (ETM) was installed in 1976 in the essential electrical control circuit for the Control Room Emergency Supply Fan, HV-MOT-(BF-C-1A). A review of similar design documents further revealed that identical non-essential ETMs have also been installed for Standby Gas Treatment Exhaust Fans, SGT-MOT-(EF-R-1E) and SGT-MOT-(EF-R-1F). An operability evaluation of the condition was subsequently initiated.

In 1981, the Equipment Data File (EDF) was created as a repository of equipment information. It did not include the ETM for the Control Room Emergency Supply Fan. In July 1986, when the Q-List was generated from the EDF, obviously it also did not include the ETM for the Control Room Emergency Supply Fan.

The Q-List included the ETMs for the Standby Gas Treatment System Fans; however, it incorrectly classified them non-essential. As a result, the ETMs for the Standby Gas Treatment Exhaust Fans remained installed as a non-essential component in an essential system.

On September 3, 1994, the Nuclear Engineering Department (NED) determined that the ETMs could not be qualified. Based on the assessment, at approximately 4:00 pm the Shift Supervisor was advised by plant management that the systems associated with the ETMs should be declared inoperable. At 4:30 pm, the Control Room Emergency Bypass Filter System and the Standby Gas Treatment System were declared inoperable.

Cause

An investigation of this event revealed that: (1) a design error was made when non-essential ETMs were found acceptable for the application in essential systems, (2) during the review process, an overview error was made when the acceptability of non-essential components in essential systems was not questioned in the review process; and, (3) a classification error was made when the Q-List failed to incorporate and improperly classified essential equipment.

The root cause of this event is that the procedures used were inadequate to ensure proper classification of equipment and to provide proper review.

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 (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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
COOPER NUCLEAR STATION	05000298	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		94	-- 020 --	0	

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

Safety Significance

The error in the installation and procurement of the ETMs as non-essential components makes the systems more vulnerable to failure. One ETM was wired in parallel with the Control Room Emergency Supply Fan and the other two in parallel with each of the two Standby Gas Treatment Exhaust Fans. Therefore, should an ETM fail, the control power fuse for the associated fan could blow preventing the start of the fan or causing a trip of the fan. As a result, the Control Room Emergency Bypass Filter System and/or Standby Gas Treatment System could have been rendered inoperable. However, the probability of failure of an ETM is 1.09×10^{-5} which is low. In reality, none of the ETMs failed in spite of their erroneous classification. Since the failure of these ETMs is highly unlikely and there has been no failure of these ETMs, the safety significance of the postulated inoperable system(s) is minimal.

Corrective Action

Upon discovery of the non-essential ETMs in essential systems, the Control Room Emergency Filter System and Standby Gas Treatment System were declared inoperable and it was documented in a Condition Report.

A Plant Temporary Modification was initiated to lift wires to the ETMs for restoring the Control Room Emergency Filter System and the Standby Gas Treatment System to an operable status.

A review of all essential system control circuit elementary drawings was performed to determine if other wiring discrepancies (i.e., non-essential ETMs directly wired into an essential circuit) had occurred. The drawing review did not reveal any wiring discrepancies of this type.

The EDF data base was reviewed to determine the number of ETMs installed at CNS. These components were then reviewed along with their associated drawings. The review of the EDF yielded the fact that all of the ETMs classified as non-essential except those that have been identified in this LER are isolated from the essential portion of the circuit.

The event, therefore, appears to be an incident caused by inadequate and defective procedures that existed at the time of installation of the ETMs.

The existing CNS procedures have been reviewed to determine if the adequacy and control presently established in them would allow such an event to occur. This review has yielded the following facts:

1. Series 3.4 Engineering Procedures require multiple design reviews by appropriate CNS departments to address engineering, constructability, operability, maintainability, radiological, ALARA, and other concerns. The Station Modification cover sheet, the Administrative Checklist, and the Station Modification Resurrection Checklist provide sufficient depth of reviews to reveal any missing information with respect to a component and system. Furthermore, the 3.4 series procedures encompass the tasks involved and responsibilities associated from the time a component or system is designed until the implementation or installation is completed and verified.

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 (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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
COOPER NUCLEAR STATION	05000298	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4
		94	-- 020 --	0	

TEXT (If more space is required, use additional copies of NRC Form 365A) (17)

2. Engineering Procedure 3.13 provides a step-by-step methodology, criteria, and controls to be used in the equipment safety classification process. This procedure is utilized in conjunction with, and appropriately referenced in, Engineering Procedure 3.4. It also triggers the necessary thought process by requiring answers to specific questions. These questions are presented in Component Application Data Sheets, Component Application Analysis Sheets, and Component Evaluation Sheets. Procedure 3.13 also furnishes System Functional Classification to eliminate any uncertainties regarding classification of equipment.

Based on the above, the guidance have been instituted in the CNS Engineering procedures since the occurrence of this error in 1976. The elements that presently exist in the 3.4 Series Engineering Procedures and Procedure 3.13 would not allow a similar event to occur.

Similar Events

None