

**LICENSEE EVENT REPORT (LER)**

|                        |                   |          |
|------------------------|-------------------|----------|
| FACILITY NAME (1)      | DOCKET NUMBER (2) | PAGE (3) |
| Cooper Nuclear Station | 0 5 0 0 0 2 9 8   | 1 OF 0 3 |

TITLE (4)

Standby Gas Treatment System Design Deficiencies

| EVENT DATE (6) |     |      | 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              | 3   | 2    | 6              | 8                 | 5               | 8               | 5   | —    | 0                             | 0 | 2 | — | 0 | 0                 | 0 | 4 | 2 | 5 | 8 | 5 | 0   5   0   0   0 |  |  |  |  |
|                |     |      |                |                   |                 |                 |     |      |                               |   |   |   |   | 0   5   0   0   0 |   |   |   |   |   |   |                   |  |  |  |  |

|                    |       |                  |  |                |                 |   |                      |  |  |  |  |  |
|--------------------|-------|------------------|--|----------------|-----------------|---|----------------------|--|--|--|--|--|
| OPERATING MODE (8) |       | N                | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) |                |                 |   |                      |  |  |  |  |  |
| POWER LEVEL (10)   | 01010 |                  | 20.402(b)  |                | 20.406(e)       |   | 50.73(a)(2)(iv)      |  | 73.71(b)   |  |  |  |
|                    |       |                  | 20.406(a)(1)(i)  |                | 50.36(c)(1)     |   | 50.73(a)(2)(v)       |  | 73.71(c)   |  |  |  |
|                    |       |                  | 20.406(a)(1)(ii)   |                | 50.36(c)(2)     | X | 50.73(a)(2)(vi) (vi) |  | OTHER (Specify in Abstract below and in Text, NRC Form 385A) |  |  |  |
|                    |       |                  | 20.406(a)(1)(iii)  |                | 50.7(a)(2)(i)   |   | 50.73(a)(2)(viii)(A) |  |  |  |  |  |
|                    |       |                  | 20.406(a)(1)(iv)   | X              | 50.73(a)(2)(ii) |   | 50.73(a)(2)(vii)(B)  |  |  |  |  |  |
| 20.406(a)(1)(v)    |       | 50.73(a)(2)(iii) |  | 50.73(a)(2)(x) |                 |   |                      |  |  |  |  |  |

LICENSEE CONTACT FOR THIS LER (12)

|  |                  |                   |
|--|------------------|-------------------|
| NAME                                     | TELEPHONE NUMBER |                   |
|  | AREA CODE        |                   |
| E. M. Mace, Plant Engineering Supervisor | 410 12           | 812 15 1-1318 111 |

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFAC-<br>TURER | REPORTABLE<br>TO NPRDS |
|-------|--------|-----------|-------------------|------------------------|
|       |        |           |                   |                        |
|       |        |           |                   |                        |

SUPPLEMENTAL REPORT EXPECTED (14)

|   |  |   |                             |                               |  |  |  |
|---|--|---|-----------------------------|-------------------------------|--|--|--|
| YES (If yes, complete EXPECTED SUBMISSION DATE) |  | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | EXPECTED SUBMISSION DATE (15) |  |  |  |
|---|--|---|-----------------------------|-------------------------------|--|--|--|

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

During plant shutdown conditions, an independent engineering firm was retained to perform a review of the Standby Gas Treatment System (SGTS) design, operating procedures, and surveillance procedures. It was determined that there are three design deficiencies which do not meet the design basis of the station. These deficiencies are as follows:

1. Expansion sleeves at the SGTS fan discharges and in the crossover line between the two SGTS trains would not provide for sufficient movement in a seismic event. This could result in a failure of the subject sleeves.
2. Supports for the crossover duct do not provide for sufficient restraint in a seismic event. This could result in a failure of the crossover duct system.
3. The SGTS housing drains are not sealed between banks of filters. This could permit a secondary flow path that would allow a portion of the air flow to bypass the filter banks.

The deficiencies noted above were identified as design inadequacies and will be corrected before plant operation requires availability of the SGTS in accordance with Technical Specification 3.7.B.1.

8505030715 850425  
PDR ADOCK 05000298  
S PDR

IE22  
111

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

| FACILITY NAME (1)      | DOCKET NUMBER (2)   | LER NUMBER (5) |                   |                 | PAGE (3) |     |        |
|------------------------|---------------------|----------------|-------------------|-----------------|----------|-----|--------|
|                        |                     | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |     |        |
|                        |                     |                |                   |                 |          |     |        |
| Cooper Nuclear Station | 0 5 0 0 0 2 9 8 8 5 | —              | 0 0 2             | —               | 0 0      | 0 2 | OF 0 3 |

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

On March 5, 1985, during plant shutdown conditions, Nebraska Public Power District retained an independent engineering firm to perform a review of the Standby Gas Treatment System design, operating procedures, and surveillance procedures. The purpose of the review was to determine if there were any recommended modifications which would ensure compliance with the applicable requirements of Regulatory Guide 1.52 and ANSI N509.

During the review of the system, it was determined that there are three deficiencies which could possibly prevent the system from performing its intended function. These deficiencies are as follows:

1. Expansion sleeves at the SGTS fan discharges and in the crossover line between the two SGTS trains do not have sufficient slack in the sleeves and potentially would not provide for sufficient movement capability in a seismic event. This could result in a failure of the subject sleeves.
2. The crossover duct between the two SGTS trains is unrestrained in one direction. Unrestricted movement during a seismic event could potentially result in a failure of the crossover duct work.
3. The SGTS housing drains are tied into a common drain header and there are no valves or loop seals in the housing drain lines. This piping arrangement could permit a small amount of process flow to bypass the filter and adsorber banks.

These deficiencies were found due to an engineering analysis of the existing SGTS. No procedural or personnel errors were identified during the review. The noted deficiencies were due to inadequacies in the design of the original system.

Cooper Nuclear Station will perform the following corrective actions prior to performing any operations which require availability of the SGTS in accordance with Technical Specification 3.7.B.1.

1. The aforementioned expansion sleeves will be replaced with sleeves which have sufficient expansion capability to prevent failure of the sleeve during the design basis seismic event.
2. Additional bracing will be added to the supports for the crossover duct to provide the necessary restraint to prevent failure of the crossover duct during the design basis seismic event. The seismic adequacy of other supports in the SGTS will also be verified and any necessary modifications will be performed.
3. An isolation valve will be installed in each SGTS housing drain line to preclude a portion of the air flow from bypassing the filters. In the event that valve procurement time is excessive, the housing drains will be individually capped until the valves are available.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/85

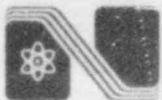
| FACILITY NAME (1)      | DOCKET NUMBER (2) | LER NUMBER (6) |                      |                    | PAGE (3) |    |     |
|------------------------|-------------------|----------------|----------------------|--------------------|----------|----|-----|
|                        |                   | YEAR           | SEQUENTIAL<br>NUMBER | REVISION<br>NUMBER |          |    |     |
|                        |                   |                |                      |                    |          |    |     |
| Cooper Nuclear Station | 0 5 0 0 0 2 9 8   | 8 5            | — 0 0 2              | — 0 0              | 0 3      | OF | 0 3 |

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

During the SGTS review described earlier, it was determined that the gas residence time in the carbon adsorbers is 0.19 seconds which is less than the 0.25 seconds recommended by Regulatory Guide 1.52. The 0.19 second residence time was calculated using an effective filter face area determined by the requirements of ANSI N509. In discussions with the filter manufacturer, it was determined that the residence time in the carbon adsorbers is 0.25 seconds using the method of calculating effective filter face area which was acceptable in the industry when the filters were originally constructed. The current method of calculating effective face area, which was originally adopted in 1976, introduces considerably more conservatism than the earlier methods.

Cooper Nuclear Station does not believe any modification of the carbon adsorbers is required because during an actual test of SGTS carbon samples on August 20, 1984, at a residence time of slightly under 0.19 seconds, a removal efficiency of 99.81 percent was demonstrated. Therefore, when using the current method of calculating residence time, the actual removal efficiency at the 0.19 seconds meets the efficiency requirements (99 percent) for the longer residence time of 0.25 seconds.

The design inadequacies identified in this LER had no effect on the public health and safety and have no generic implications.



## Nebraska Public Power District

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

CNSS850203

April 25, 1985

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 85-002 is forwarded as an attachment to this letter.

Sincerely,

P. V. Thomason  
Division Manager of  
Nuclear Operations

PVT:lb  
Attach.

cc: R. D. Martin  
L. G. Kurcl  
J. D. Weaver  
L. R. Berry  
INPO Records Center  
ANI Library

1E22  
11