



Commonwealth Edison
 Dresden Nuclear Power Station
 R.R. #1
 Morris, Illinois 60450
 Telephone 815/942-2920

December 16, 1991

CWS LTR #91-053

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

Licensee Event Report 91-035, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(iv).

L. J. Demmer for 12/24

Charles W. Schroeder
 Station Manager
 Dresden Nuclear Power Station

CWS/dwh

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
 NRC Resident Inspector's Office
 File/NRC
 File/Numerical

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(ZDVR/403)

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

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| Facility Name (1) Dresden Nuclear Power Station, Unit 2 | Docket Number (2) 0 5 0 0 0 2 13 17 | Page (3) 1 of 0 4 |
| Title (4) Auto Closure of Reactor Building Ventilation Inlet Isolation Dampers Due to Setpoint Design Deficiency | | |

| 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) | |
| 11 | 26 | 91 | 91 | 0315 | 00 | 12 | 16 | 91 | N/A | | |
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| OPERATING MODE (9) POWER LEVEL (10) 0 0 0 | N | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11) | | | | | | | | | | | | | | | |
| | | <input type="checkbox"/> 20.402(b) | <input type="checkbox"/> 20.405(a)(1)(i) | <input type="checkbox"/> 20.405(a)(1)(ii) | <input type="checkbox"/> 20.405(a)(1)(iii) | <input type="checkbox"/> 20.405(a)(1)(iv) | <input type="checkbox"/> 20.405(a)(1)(v) | <input type="checkbox"/> 20.405(c) | <input checked="" type="checkbox"/> 50.73(a)(2)(iv) | <input type="checkbox"/> 50.73(a)(2)(v) | <input type="checkbox"/> 50.73(a)(2)(vii) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | <input type="checkbox"/> 50.73(a)(2)(x) | <input type="checkbox"/> 73.71(b) | <input type="checkbox"/> 73.71(c) | <input type="checkbox"/> Other (Specify in Abstract below and in Text) |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|--|--|
| Name Anthony N. Anandappa Technical Staff System Engineer Ext. 2529 | TELEPHONE NUMBER AREA CODE 8 1 5 9 4 2 -12 9 2 0 |
|--|--|

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) | <input checked="" type="checkbox"/> NO | Expected Submission Date (15) | Month Day Year |
|---|--|-------------------------------|--------------------|

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

On November 26, 1991 at 1916 hours, with Unit 2 shutdown, a Control Room Operator attempted to open the Reactor Building Ventilation System (RBVS) inlet isolation dampers 2A-5741 and 2B-5741; however, the dampers opened and immediately closed. The root cause of the event was determined to be a setpoint deficiency such that a pressure switch setting on the damper operator had insufficient margin to the actual Instrument Air header pressure. The pressure switches for damper operators 2A-5741 and 2B-5741 had been recently adjusted to 79.6 and 80.0 psig respectively. During operation of the damper, a reduction of the motive air pressure below the pressure switch setting resulted in the unplanned damper closure. The dampers closed as designed when the actuator setpoint was challenged and isolation of the RBVS dampers for the short time had minimal affect on plant status. The event was deemed of minimal safety significance. Engineering is currently reviewing the pressure switch setting. This is the first occurrence of this type.

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| TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX] | | | | | |

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 Mwt rated core thermal power

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

Auto Closure of Reactor Building Ventilation Inlet Isolation Dampers Due to Setpoint Design Deficiency

A. CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: November 26, 1991 Event Time: 1916 Hours

Reactor Mode: N Mode Name: Shutdown Power Level: 0%

Reactor Coolant System (RCS) Pressure: 0 psig

B. DESCRIPTION OF EVENT:

On November 11, 1991 at 1916 hours with Unit 2 shutdown, the Operations Shift Supervisor, while investigating a spurious closure of Reactor Building Ventilation System (RBVS) [VA] inlet isolation damper 2B-5741, attempted to open the inlet isolation dampers 2A-5741 and 2B-5741. The inlet isolation dampers opened and then cycled closed. The dampers were then placed in the closed position and a further investigation was initiated.

C. APPARENT CAUSE OF EVENT:

This report is submitted to comply with 10CFR50.73(a)(2)(iv), which requires the reporting of any unplanned Engineered Safety Feature (ESF) actuation. The unplanned damper movements were classified as ESF actuations because an end component actuation occurred, even though the isolation logic circuitry was not challenged or fulfilled.

Investigation revealed that the air operator pressure switch setpoints associated with the 2A-5741 and 2B-5741 dampers had been revised on September 25, 1991 and October 26, 1991, respectively, as part of an engineering study. The cause of the unplanned damper movements was insufficient margin between the damper operator pressure switch setpoint and Instrument Air [LD] header pressure (see figure 1). The pressure switch on damper operator 2A-5741 was set to trip at 79.6 psig. and reset at 84.6 psig. The pressure switch on damper operator 2B-5741 was set to trip at 80.0 psig. and reset at 83.0 psig. Instrument air is the motive air required to operate these dampers. A single 1-inch header provides air to the inlet and outlet isolation damper operators. The instrument air system operates at 95 psig at the air receivers. However, due to system demands and line losses, the air pressure to the dampers is normally approximately 90 psig. A single control switch operates a pair of inlet dampers and another control switch operates the pair of outlet isolation dampers. When the dampers get an open or close signal, there is a surge in air demand by the damper operators resulting in a momentary reduction of the air header pressure. A possible contributing cause of the event was the configuration of Instrument Air system. One of the Instrument Air Compressors had tripped previously, resulting in lower than normal Instrument Air header pressure. Although the inlet and outlet isolation dampers were successfully operated earlier that day at 0820 and 1130 hours to briefly operate the Reactor Building ventilation system, it is

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believed that the slightly reduced Instrument Air header pressure contributed in the occurrence of this event. However, the root cause of the event was attributed to design deficiency in that the revised operator pressure switch setpoints were inadequate to prevent unplanned damper closure.

D. SAFETY ANALYSIS OF EVENT:

The damper operator pressure switches are designed to provide automatic closure on loss of Instrument Air header pressure. The RBVS isolation dampers provide Secondary Containment isolation. These dampers are designed to automatically close upon receipt of following isolation signals:

1. Primary Containment Group II Isolation [JM]; or
2. High radiation sensed by the Radiation Monitors [IL] in the RBVS Exhaust Duct; or
3. High radiation sensed by the Radiation Monitors in the reactor building on the Refuel Floor.

The event that occurred simulated a loss of instrument air when the air header pressure momentarily decreased to below the setpoint of the pressure switch. The dampers closed as designed when the operator pressure setpoint was challenged. Therefore, the closure function of the dampers was operable. The Standby Gas Treatment System Train 'A' [BH] was operating during the event and maintained reactor building vacuum. The Unit 3 RBVS isolation dampers were in the closed position, and were operable.

E. CORRECTIVE ACTIONS:

The Commonwealth Edison Nuclear Engineering Department has evaluated improvements to the pressure switch setpoints, such that momentary reductions in air header pressure will not cause spurious damper closure. The new pressure switch setpoints will be related to the minimum air pressure required for the damper closure timing to be less than 30 seconds. The pressure switch setpoint at the time of the event had been related to the maximum damper closure timing of 20 seconds. The damper timing was obtained upon review of the bostulated releases through the Reactor Building Ventilation System if a refueling accident were to occur. The calculated releases were determined not to exceed 10 CFR 100 release rate limits, and are also less than the calculated limits for the bounding main steam line break outside containment accident conditions. The Technical Staff System Engineer will perform a special test with assistance from the Instrument Maintenance Department to obtain the new pressure switch setpoints such that a damper closure occurs in 30 seconds or less. Appropriate procedure changes will be made for these new setpoints and damper closure times (237-200-91-22301).

F. PREVIOUS OCCURENCES:

LER/Docket Numbers Title

There has not been any similar event previously reported.

G. COMPONENT FAILURE DATA:

This section is not applicable since no component failure was involved.

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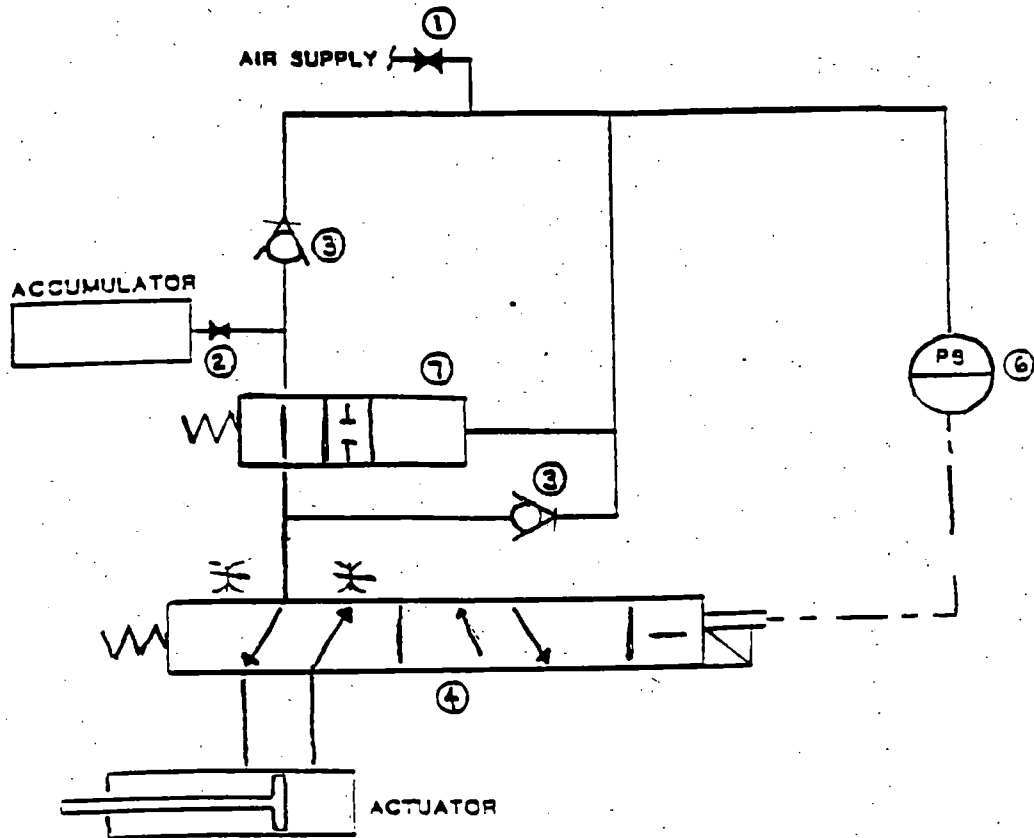


Figure 1

Schematic of Damper Operator

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- 1. INSTRUMENT AIR SUPPLY ISOLATION VALVE
- 2. ACCUMULATOR ISOLATION VALVE
- 3. BALL CHECK VALVES
- 4. FOUR-WAY SOLENOID VALVE
- 5. PRESSURE GAUGE
- 6. PRESSURE SWITCH
- 7. MECHANICAL VERSA VALVE