

Commonwealth Edison Zion Generating Station 101 Shiloh Blvd. Zion, Illinois 60099 Telephone 312/746-2084

December 22, 1989

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

Dear Sir:

The enclosed Licensee Event Report number 89-22-00, Docket No. 50-295/DPR-39 from Zion Generating Station is being transmitted to you in accordance with the requirements of IOCFR50.73(a)(2)(i)(B), which requires a 30 day written report when any operation or condition is prohibited by the plant's Technical Specifications.

Very truly yours,

Ja

T. P. Joyce Station Manager Zion Station

TPJ/nd

Enclosure: Licensee Event Report

cc: NRC Region III Administrator NRC Resident Inspector INPO Record Center CECo Distribution List.

> 9001080243 891222 PDR ADOCK 05000295 S PDC

# DEVIATION REPORT

|   | DVR NO. 22 - 01 - 8  | 39 - 165   |   |
|---|--|--|---|
|   | STA UNIT YE  | AR NO.   | Form Rev 2.   |
| PART 1   TITLE OF DE  | VIATION  | OCCURRED   | 11-22-89 1445   |
| UBN Service water Ar  | ea Air Crart Crash pamper round Open   | and the second s | I TECTING   |
| SYSTEM AFFECTED   | PLANT STATUS AT TIME OF EVENT  | 87796  | TESTING   |
| CV  | MODE POWER(%)  | WORK REQUEST NO.   | IIYES IX_INO  |
| crash damper f<br>solenoid valve<br>closed except<br>written. | ailed open with fan off. Fan breaker and dam<br>was not letting air thru to close damper. T<br>when fan is on or be in its accident (closed) | mper solenoid valve v<br>Tech Spec 3.17.2 requ<br>position. An "A" v   | vere energized but<br>Jires damper be<br>work request was |
|   |  |  |   |
| POTENTIALLY SI  | GNIFICANT EVENT PER NSD DIRECTIVE A-07   | 1 YES 1.   | X_1 NO  |

| 10CFR50.72 NRC RED PHONE | 1 1 HOUR         |                                    |               |
|--------------------------|------------------|------------------------------------|---------------|
| NOTIFICATION MADE        | 1 4 HOUR _1805 N | RESPONSIBLE SUPERVISOR Keith Dryer | DATE 11-22-89 |

PART 2 | OPERATING ENGINEER'S COMMENTS

Solenoid was changed out by 1800 hrs. and damper confirmed closed.

| Image: Non Reportable Event       Image: Non Reportable Event </th <th>NOTIFICATION_Res</th> <th>ident Inspector</th> <th><u>11-27-89</u><br/>DATE</th> <th>0930<br/>TIME</th> | NOTIFICATION_Res          | ident Inspector                              | <u>11-27-89</u><br>DATE | 0930<br>TIME |
|--|---------------------------|--|-------------------------|--------------|
| 5 DAY REPORT PER 10CFR21   | Nuclear Stat              | ion Duty Officer<br>NSD                      |                         | 0930<br>TIME |
| A.I.R. #   |                           | RPORATE NOTIFICATION<br>E NOTIFICATION IS PE | MADE<br>R 10CFR21       |              |
| L.E.R. #   | CEC                       | CORPORATE OFFICER                            | DATE                    | TIME         |
| PRELIMINARY REPORT<br>COMPLETED AND REVIEWED   | Carnahan<br>LING ENGINEER | 11-25-89<br>DATE                             |                         |              |
| INVESTIGATION REPORT & RESOLUTION ACCEPTED BY STATION REVIEW   | tel                       | m Caruba                                     | ABCG                    |              |
| RESOLUTION APPROVED AND<br>AUTHORIZED FOR DISTRIBUTION   | J. a Rink                 | 121  | 122/89                  |              |
| 36-5176 (Form 15-52-1) 11-20-85  | A STATION MANAGER         |  | DATE                    | •            |

|   | LICENSE  | E EVENT REPO  | ORT (LER)         |  |  | Form Rev 2.0  |
|---|--|---|-------------------|--|--|---|
| Facility Name (1)   |  |   |                   | Docket Num   | ber (2)  | Page (3)  |
| (init 1 0 15 10   |  |   | 0 15 10 10        | 10 10 12 19 15 1 of 0 3  |  |   |
| Title (4)<br>OBN Service Water Area Vent  | Fan Aircraft Crash Damp  | er Found Ope  | n Due To          | Solenoid Val   | ve Failure   |   |
| Event Date (5)   LER  | Number (6)   | Report Da   | te (7)            | Other F  | acilities I  | nvolved (8)   |
| Month Day Year Year ////S   | Number /// Revision  | Month Day   | Year              | Facility N   | lames Dock   | et Number(s)  |
|   |  |   | 1.1.1.1           | N/A  | 11   |   |
| 111212810810  | 0 1 2 12 0 1 0   | 1 2 2 12  | 819               |  | 1  |   |
| OPERATING<br>MODE (9)     THIS<br>(Chec<br>5       POWER    2       LEVEL    2       (10)     0     0       2    2       Nable    2 | REPORT IS SUBJUTTED PUR     k one or more of the fo     (0.402(b)  20     (0.405(a)(1)(i)  50     (0.405(a)(1)(ii)  50     (0.405(a)(1)(iv)  50     (0.405(a)(1)(iv)  50     (0.405(a)(1)(iv)  50     (0.405(a)(1)(v)  50     (0.405(a)(1)(v)  50     (0.405(a)(1)(v)  50     (0.405(a)(1)(v)  50     (1)(v)  50     LICENSEE  0 | SUANT TO THE<br>11owing) (11<br>.405(c)<br>.36(c)(1)<br>.36(c)(2)<br>.73(a)(2)(1)<br>.73(a)(2)(1)<br>.73(a)(2)(1)<br>CONTACT F. | REQUIREM<br>)<br> | ENTS OF 10CF<br>.73(a)(2)(iv<br>.73(a)(2)(v)<br>.73(a)(2)(vi<br>.73(a)(2)(vi<br>.73(a)(2)(vi<br>.73(a)(2)(x)<br>(12)<br>AREA C | R<br>()<br>(1)<br>(1)<br>(1)<br>(1)<br>(1)<br>(1)<br>(1) | 73.71(b)<br>73.71(c)<br>Other (Specify<br>in Abstract<br>below and in<br>Text)<br>NE NUMBER |
| COMPLETE O  | INE LINE FOR EACH COMPON   | ENT FAILURE   | DESCRIBED         | IN THIS REP  | ORT (13)   | 10 1  |
| CAUSE SYSTEM COMPONENT MAN  | INFAC- REPORTABLE  | CAUSE   | SYSTEM            | COMPONENT  | MANUFAC-<br>TURER  | REPORTABLE TO NPRDS   |
| X U A IF IS IV A 14   | 199 N  | 111   |                   |  | +++  | 122223  |
| SUPPLEMENTA   | L REPORT EXPECTED (14)   | Edit A  | anne den serend   | en en la constant de                 | Expected   | Month   Day   Year  |
| Yes (If yes, complete EXPECT  | ED SUBMISSION DATE)  |   |                   |  | Submission<br>Date (15)                                  |   |

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

On November 22, 1989 at 1445 hours the OBN Service Water Area Vent Fan Aircraft Crash Damper was found open with its fan off by a Technical Staff Engineer investigating other items in the Cribhouse. The open aircraft crash damper violates Technical Specification 3.17.2 which requires that the aircraft crash damper be closed (its accident position) unless its fan is running. Unit 1 was in the refueling mode at this time. Investigation revealed that the damper control air solenoid valve had failed closed and caused the damper to fail open. Electrical Maintenance (EM) personnel replaced the defective solenoid valve by 1800 hours on November 22, 1989 and closed the damper (confirmed by Technical Staff Engineer). The OBN fan was cautior-carded nut to run until the damper was confirmed fully operational on 12-7-89 by PT-210 (Aircraft Crash fire Detection System Test). There was minimal safety significance due to this event since there were no aircraft crash incidents during the time the damper was open. The exact time that the damper was open is undetermined but the damper was successfully tested per PT-210 on October 25, 1989 which confirmed the damper closed. This is the last written record of this damper's position prior to the November 22, 1989 discovery.

| *                 | LICENSEE EVENT REPORT (LER) | LEXT CONT | NUAT           | 10N                  |      |                    | Fo       | rm Re | v 2.0 |
|-------------------|-----------------------------|-----------|----------------|----------------------|------|--------------------|----------|-------|-------|
| FACILITY NAME (1) | DOCKET NUMBER (2)           | LER M     | LER NUMBER (6) |                      |      |                    | Page (3) |       |       |
|                   |                             | Year      | 11/1           | Sequential<br>Number | 11/1 | Revision<br>Number |          |       |       |
| Zion Unit 1       | 0 1 5 1 0 1 0 1 0 12 19 1   | 5 8 9     | -              | 01212                | _    | 0 1 0              | 0 12     | OF    | 0 13  |

#### A. CONDITION PRIOR TO EVENT

MODE 5 - Refueling RX Power N/A RCS [AB] Temperature/ Pressure N/A \*F/ N/A psig

#### B. DESCRIPTION OF EVENT

On November 22, 1989 at 1445 hours the OBN Service Water Area Vent Fan Aircraft Crash Damper was found open with its fan off by a Technical Staff Engineer investigating other items in the Cribhouse. The open aircraft crash damper violates Technical Specification 3.17.2 which requires that the aircraft crash damper be closed (its accident position) unless its fan is running. Unit 1 was in the refueling mode at this time. An "A" work request (Z-87796) was issued to investigate the problem.

#### C. APPARENT CAUSE OF EVENT

The Technical Staff System Engineer determined that the damper control air solenoid valve had failed closed, isolating control air to the damper control air valve, which then opened the damper. Normally with the fan off the solenoid valve (3-way) is energized to maintain control air to the control air valve which then maintains the damper closed. In this case the solenoid valve coil had weakened and allowed the solenoid valve plunger to close even though the coil remained energized. Neither Shift Engineer logs nor Control Room Center Desk Operator logs indicate any special or normal testing which could have deenergized the solenoid valve and opened the damper between October 25, 1989 (the last written record of the aircraft crash damper being closed per PT-210, the semi-annual Aircraft Crash Fire Detection System Test) and November 22, 1989. Although Unit 2 PT-10 testing (Safeguards Systems Testing) was being conducted between Number 10, 1989 and November 30, 1989, the pertinent sections of PT-10 that de-energize Bus 248 (which powers MCC 2382 from which the OBN Service Water Area Fan Breaker is powered) were not done until November 30, 1989, i.e. eight days after the OBN damper was found open. The out-of-service log does not indicate that the OBN fan, MCC 2382, or Bus 248 were taken out-of-service between October 25, 1989 and November 22, 1989. The Service Water Area vent fans are run in the manual mode during the winter months to maintain the Cribhouse between 65°F and 105°F. The Center Desk log, which is responsible for noting status of this equipment, did not indicate that the OBN fan was run between October 25, 1989 and November 22, 1989.

|                      | LICENSEE EVENT REPORT (LER) TE     | KT CONTINUATION Form Rev 2.0         |
|----------------------|------------------------------------|--------------------------------------|
| FACILITY NAME (1)    | DOCKET NUMBER (2)                  | LER NUMBER (6) Page (3)              |
|                      |                                    | Year /// Sequential /// Revision     |
| Zion Unit 1          | 0 1 5 1 0 1 0 1 0 12 19 15         | 8 9 - 0 1 2 1 2 - 0 1 0 0 13 OF 0 13 |
| TEXT Energy Industry | Identification System (EIIS) codes | are identified in the text as [XX]   |

## D. SAFETY ANALYSIS OF EVENT

There was minimal safety significance due to this event since the time that the damper was open was probably short. Although the exact time that the damper was open is undetermined (the damper was last confirmed closed during a PT-210 test on October 25, 1989), the actual time that the damper was open is probably much less than 28 days (October 25, 1989 to November 22, 1989) since Operating B-Men make Cribhouse shiftly rounds for equipment checks and would probably notice the open damper. Although Cribhouse aircraft crash dampers are not on the B-Men check list they are in an open area of the ceiling which is easily seen if looking up. Further, the cognizant Technical Staff Engineer makes frequent visits into the Cribhouse (averaging 2 - 3 times per week) for general system walkdown purposes or specific problem investigation. In the event an aircraft crash did occur during the time that the aircraft crash damper was failed open, the effect of the crash would be minimized by the tortuous ductwork path between the intake plenum penthouse and the location of the aircraft crash damper (at the discharge of the OBN fan). This tortuous path consists of two louvered dampers and about 30 feet of ductwork including three 90° duct turns. Upon an aircraft crash all the service water area fans on the north end of the cribhouse (fans OAN, OBN and OCN) would trip off thereby removing ductwork suction pressure for the fire. This fact, together with the ductwork tortuous path, would greatly minimize the chances of flames entering into the service water pump area through the ductwork even though the aircraft crash damper would be open.

## E. CORRECTIVE ACTIONS

Electrical Maintenance personnel working under work request Z87796 replaced the failed damper solenoid valve by 1800 hours on November 22, 1989 which closed the damper (confirmed by the Technical Staff Engineer). The OBN fan was then caution-carded not to run until its damper was successfully tested on December 7, 1989 per PT-210 meeting its 2-second closing time requirement. No further corrective actions are necessary since damper solenoid valve failures leading to failed open aircraft crash dampers are rare.

#### F. PREVIOUS EVENTS

There have been two previous events where aircraft crash damper failures were attributed to ASCO Solenoid valve failures.

| 1) | DVR | 88-021 | (Unit | 1) |
|----|-----|--------|-------|----|
| 2) | LER | 89-01  | (Unit | 1) |

### G. COMPONENT FAILURE DATA

ASCO 3-way Solenoid valve model 8320.