



Commonwealth Edison
Braidwood Nuclear Power Station
Route #1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

April 24, 1991
BW/91-0374

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

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(iv) which require a 30-day written report.

This report is number 91-005-00; Docket No. 50-456.

Very truly yours,

K. L. Kotron
Station Manager
Braidwood Nuclear Station

KLK/DN/clf
(226/ZD85G)

Enclosure: Licensee Event Report No. 91-005-00

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

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9104290190 910424
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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

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|---|--------|-----------|--|---------------------|-----------------|---|-----------------|-----------|---|--|---------------------------|---|--|--|----------------------------|--|--|--|--|
| Facility Name (1) Braidwood Unit 1 | | | | | | | | | | Docket Number (2) 0 5 0 0 0 4 5 6 | | | | | Page (3) 1 of 0 3 | | | | |
| Title (4) Control Room Ventilation to Emergency Mode on a Loss of Power to Outside Intake Radiation Monitors | | | | | | | | | | | | | | | | | | | |
| 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) | | | | | | | | |
| 0 3 | 2 6 | 9 1 | 9 1 | 0 0 5 | 0 0 | 0 4 | 2 4 | 9 1 | None | | 0 5 0 0 0 1 1 | | | | | | | | |
| OPERATING MODE (9) | | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11) | | | | | | | | | | | | | | | | |
| POWER LEVEL (10) 0 0 0 | | | 20.402(b) | | | 20.405(c) | | | <input checked="" type="checkbox"/> 50.73(a)(2)(iv) | | | <input type="checkbox"/> 73.71(b) | | | | | | | |
| | | | 20.405(a)(1)(i) | | | 50.36(c)(1) | | | <input type="checkbox"/> 50.73(a)(2)(v) | | | <input type="checkbox"/> 73.71(c) | | | | | | | |
| | | | 20.405(a)(1)(ii) | | | 50.36(c)(2) | | | <input type="checkbox"/> 50.73(a)(2)(vii) | | | <input type="checkbox"/> Other (Specify | | | | | | | |
| | | | 20.405(a)(1)(iii) | | | 50.73(a)(2)(i) | | | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | | | in Abstract | | | | | | | |
| | | | 20.405(a)(1)(iv) | | | 50.73(a)(2)(ii) | | | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | | | below and in | | | | | | | |
| 20.405(a)(1)(v) | | | 50.73(a)(2)(iii) | | | <input type="checkbox"/> 50.73(a)(2)(x) | | | <input type="checkbox"/> Text) | | | | | | | | | | |
| LICENSEE CONTACT FOR THIS LER (12) | | | | | | | | | | | | | | | | | | | |
| Name M. Auer, Technical Staff Engineer | | | | | | | | | | TELEPHONE NUMBER AREA CODE 8 1 5 4 5 8 - 2 8 0 1 | | | | | | | | | |
| Ext. 2770 | | | | | | | | | | | | | | | | | | | |
| COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) | | | | | | | | | | | | | | | | | | | |
| CAUSE | SYSTEM | COMPONENT | MANUFAC-TURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFAC-TURER | REPORTABLE TO NPRDS | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| SUPPLEMENTAL REPORT EXPECTED (14) | | | | | | | | | | Expected Submission Date (15) | | | | | | | | | |
| Yes (If yes, complete EXPECTED SUBMISSION DATE) | | | | | | | | | | <input checked="" type="checkbox"/> NO | | | | | | | | | |
| ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16) | | | | | | | | | | | | | | | | | | | |

At 0343 on March 26, 1991, the Main Control Room Ventilation system shifted to the emergency mode of operation. The actuation was caused by a momentary loss of voltage to Control Room Outside Intake Radiation Monitors ORT-PR033 and ORT-PR034. The voltage drop was caused by a lightning strike in the switchyard area. ORT-PR033 and ORT-PR034 automatically restarted and returned to normal operation. The cause of the event was a momentary fluctuation in voltage available to the monitor. When lightning struck the switchyard, it resulted in a disturbance to the onsite power distribution system. Within seconds, the monitors regained the required voltage and returned to their pre-event condition. The Main Control Room Ventilation System was restored to a normal alignment. There have been previous occurrences of Engineered Safety Feature (ESF) actuations caused by lightning. To reduce the number of ESF actuations caused by lightning, the lightning protection system is presently being modified. The grounding system is being improved by the installation of additional ground conductors. A lightning dissipation system is being installed to protect the containment buildings and the auxiliary building ventilation stacks. These locations were chosen because they are the tallest structures at Braidwood Station and the most likely to be struck by lightning. This system has been installed at other nuclear plants and is scheduled to be in service by June 1991.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | Page (3) | | |
| | | Year | /// | Sequential Number | /// | Revision Number | |
| Braidwood Unit 1 | 0 5 0 0 0 4 5 6 | 9 1 | - | 0 0 5 | - | 0 0 | 0 2 OF 0 3 |
| TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [XX] | | | | | | | |

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: March 26, 1991; Event Time: 0343
 Mode: Defueled; Rx Power: 0%;
 RCS [AB] Temperature / Pressure: Ambient

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of the event which contributed to the severity of the event.

At 0343 on March 26, 1991, the Main Control Room Ventilation (VC) [VI] system automatically shifted to the emergency mode of operation. The actuation was caused by a momentary loss of voltage to Control Room Outside Intake Radiation Monitors (PR) [IL] ORT-PR033 and ORT-PR034. The voltage drop was caused by a lightning strike in the switchyard area.

Within seconds, ORT-PR033 and ORT-PR034 automatically restarted and returned to normal operation. The actuation signal immediately reset. After verification that radiation levels were normal, the VC system was restored to a normal line-up.

The appropriate NRC notification via the ENS phone system was made at 0540 pursuant to 10CFR50.72(b)(2)(ii).

This event is being reported pursuant to 10CFR50.73(a)(2)(iv) - any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System.

C. CAUSE OF EVENT:

The cause of the event was a momentary fluctuation in voltage available to the monitor. When lightning struck the switchyard, it created a disturbance to the onsite power distribution system. The voltage supplied to the monitors decreased below the interlock setpoint. The monitors sensed a loss of power and generated signals to start the control room make-up fan and align ventilation dampers to their emergency position. This failsafe design ensures that the required protective actuations will occur during a loss of power.

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. All systems operated as designed. There were no abnormal levels of radioactivity detected or released during the event. The other Main Control Room Outside Intake Radiation Monitors were available and unaffected by this event. During the worst case condition, the system response would be identical.

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E. CORRECTIVE ACTIONS:

After the lightning strike, the onsite distribution voltage level stabilized. The monitors regained the required voltage and returned to their pre-event condition. The VC System was restored to a normal alignment. The transmission system is designed to accept minor fluctuations. But the effects of lightning, due to a large and sudden change in electrical potential, on the transmission system are unpredictable.

To reduce ESF actuations caused by lightning at Braidwood Station, the lightning protection system is presently being modified: (1) The grounding system is being improved by the installation of additional ground conductors. This will increase the grounding capacity and transfer more of the electrical energy to the earth. (2) A lightning dissipation system is being installed to protect the containment buildings and the auxiliary building ventilation stacks. These locations were chosen because they are the tallest structures at Braidwood Station and the most likely to be struck by lightning. This system has been installed at other nuclear plants and is scheduled to be in service by June 1991. This item will be tracked to completion by Action Item No. 456-200-90-02301.

F. PREVIOUS OCCURRENCES:

There have been previous occurrences of ESF actuations caused by lightning. The installation of a lightning dissipation system is expected to reduce the number of ESF actuations caused by lightning.

G. COMPONENT FAILURE DATA:

This event was not the result of component failure, nor did any components fail as a result of this event.