

Commonwealth Edison Company  
Braidwood Generating Station  
Route #1, Box 84  
Braceville, IL 60407-9619  
Tel 815-458-2801



January 4, 1996  
BW/96-0004

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

Gentlemen:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted in accordance with the requirement of 10 CFR 50.73(a)(2)(iv), which requires a 30-day written report.

This report is number 95-019-00, Docket No. 50-456.

Yours truly,

T.J. Tulon  
Station Manager  
Braidwood Nuclear Station

TJT/BJM/ema  
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Enc: Licensee Event Report  
No. 456-95-019-00

cc: NRC Region III Administrator  
NRC Resident Inspector  
INPO Record Center  
ComEd Distribution Center  
I.D.N.S.  
I.D.N.S. Resident Inspector

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FACILITY NAME (1) **Braidwood Station Unit 1** DOCKET NUMBER (2) **05000456** PAGE (3) **1 OF 4**

TITLE (4)  
**Manual Reactor Trip initiated during Rod Drop Testing due to failed testing relays.**

| 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 |
| 12             | 07  | 95   | 95             | 019               | 00              | 1               | 05  | 96   | FACILITY NAME                 | DOCKET NUMBER |

|                    |    |                                                                                             |                   |                   |                                               |
|--------------------|----|---------------------------------------------------------------------------------------------|-------------------|-------------------|-----------------------------------------------|
| OPERATING MODE (9) | 3  | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) |                   |                   |                                               |
| POWER LEVEL (10)   | 0% | 20.2201(b)                                                                                  | 20.2203(a)(2)(v)  | 50.73(a)(2)(i)    | 50.73(a)(2)(viii)                             |
|                    |    | 20.2203(a)(1)                                                                               | 20.2203(a)(3)(i)  | 50.73(a)(2)(ii)   | 50.73(a)(2)(x)                                |
|                    |    | 20.2203(a)(2)(i)                                                                            | 20.2203(a)(3)(ii) | 50.73(a)(2)(iii)  | 73.71                                         |
|                    |    | 20.2203(a)(2)(ii)                                                                           | 20.2203(a)(4)     | X 50.73(a)(2)(iv) | OTHER                                         |
|                    |    | 20.2203(a)(2)(iii)                                                                          | 50.36(c)(1)       | 50.73(a)(2)(v)    | Specify in Abstract below or in NRC Form 366A |
|                    |    | 20.2203(a)(2)(iv)                                                                           | 50.36(c)(2)       | 50.73(a)(2)(vi)   |                                               |

LICENSEE CONTACT FOR THIS LER (12)  
 NAME: **J. Phillips, Root Cause Team** TELEPHONE NUMBER (include Area Code): **(815) 458-2801 x2228**

| 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 |
| X                                                                          | AA     | RLY       | C345         | YES                 |       |        |           |              |                     |

SUPPLEMENTAL REPORT EXPECTED (14)  
 YES (if yes, complete EXPECTED SUBMISSION DATE):  NO

EXPECTED SUBMISSION MONTH: DAY: YEAR:

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

During the performance of Rod Drive (RD) Automatic Rod Drops, control bank D rods D12, M04, and H08 remained at 231 steps when expected to insert. The remaining rods in control bank D (D4 & M12) dropped as expected. At 1759 the reactor trip breakers were manually opened in accordance with the precautions discussed prior to the surveillance performance. All rods fully inserted following the manual Reactor Trip as designed. A subsequent investigation revealed the relay contacts used to signal the start of the rod drop sequence did not change state. It was determined the most likely failure was a faulty coil on the RA1 relay in power cabinet 2BD. The rods for shutdown bank C were withdrawn to 231 steps, and a rod drop signal was initiated. The contacts in the RA1 relay for shutdown bank C failed to operate resulting in failure to de-energize the movable gripper coils which held the rods at 231 steps. At 1935 the reactor trip breakers were manually opened in accordance with the precautions discussed prior to the surveillance performance. All rods fully inserted following the manual Reactor Trip as designed. The System Engineer elected to discontinue the automatic testing and control bank D and shutdown bank C were successfully tested manually. No administrative nor technical specification requirements directed the opening of the reactor trip breakers for either event. At 2103 the appropriate NRC notification was made via the ENS phone system. There has been no previous occurrences of a model HG3A1004 relay failure at Braidwood Station. In August 1995, as reported under Docket Number 45718095005, a model HG3A1003 relay failed.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-8 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) |                   |                 | PAGE (3) |
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|                   |                   | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |
| Braidwood Unit 1  | 05000456          | 95             | -- 019 --         | 00              | 2 OF 4   |

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

**A. PLANT CONDITIONS PRIOR TO EVENT:**

UNIT: Braidwood Unit 1                      EVENT DATE: 12/07/95  
 EVENT TIME: 1759  
 MODE: 3                      RX POWER: 0%  
 RCS [AB] TEMPERATURE/PRESSURE: 557°F/2233\*

**B. DESCRIPTION OF EVENT:**

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

On December 12, 1995, at 1530, a Heighten Level of Awareness (HLA) session was conducted for the performance of BwVS 1.3.4-1a (Rod Drop Time (Automatic)).

The reactor trip breakers were closed to commence rod drop time testing. At 1750, during the performance of BwVS 1.3.4-1a, control bank D rods were fully withdrawn to step 231 for the performance of rod drop testing. When a rod drop signal was initiated, the relay contacts in power cabinet 2BD for rods D12, M04, and H08 did not appear to change state. These rods stayed at 231 steps. The remaining rods in control bank D (D4 & M12), controlled from power cabinet 1BD, did drop as expected.

At 1759 the reactor trip breakers were manually opened as a conservative measure in accordance with the precautions discussed prior to the surveillance performance. Rods D12, M04 and H08 fully inserted following the manual Reactor Trip as designed. An immediate investigation began, with the reactor trip breakers remaining open, to determine the cause.

At 1900 the investigation revealed the relay contacts used to signal the start of the rod drop sequence did not change state. It was determined the most likely failure was a faulty coil on the RA1 relay in the 2BD Rod Drive (RD) [AA] Power Cabinet. The faulty relay is used only during automatic rod drop testing and has no effect on normal rod control circuitry.

At 1929 automatic testing of shutdown bank C rods was attempted. The rods were withdrawn to 231 steps, and a rod drop signal was initiated. Shutdown Bank C rods failed to insert as expected.

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|                   |                   | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |
| Braidwood Unit 1  | 05000456          | 95             | -- 019 --         | 00              | 3 OF 4   |

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

At 1935 the reactor trip breakers were again manually opened as a conservative measure in accordance with the precautions discussed prior to the surveillance performance. All shutdown bank C rods fully inserted following the manual Reactor Trip as designed. A subsequent investigation revealed the contacts in the RA1 relay in SCDE Power cabinet failed to function properly. These failed contacts resulted in failure to de-energize the movable gripper coils which held the rods at 231 steps. The faulty relay is used only during automatic rod drop testing and has no effect on normal rod control circuitry.

The System Engineer (non licensed) elected to discontinue the automatic testing and perform manual rod drop testing due to rod drop testing being critical path. Control bank D and shutdown bank C were then successfully manually tested.

At 2103 the appropriate NRC notification was made via the ENS phone system pursuant to 10CFR50.72(b) (2) (ii).

This event is being reported pursuant to 50.73 (a) (2) (iv), any event that resulted in a manual or automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS).

C. CAUSE OF EVENT:

The manual reactor trip was initiated as a conservative action due to the failure of the testing relays in the 2BD and SCDE power cabinets. There were no administrative nor technical specification requirements to open the reactor trip breakers in those situations. The cause of the rods failing to drop during the testing sequence was the result of a failed coil and failed contacts in the testing interface relays.

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. All systems operated as designed except control rods D4 and M12 which were already on the bottom. The remaining rods in control bank D and all rods in shutdown bank C automatically went to the bottom of the core. The failed relays are only used during automatic rod drop testing and have no effect on manual rod drop testing nor normal rod control circuitry.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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| Braidwood Unit 1  | 05000456          | 95             | -- 018 --         | 00              | 4 OF 4   |

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

E. CORRECTIVE ACTIONS:

Immediate actions in both events were to open the reactor trip breakers as discussed in the HLA briefing. Additional actions were to terminate automatic testing and determine the causes of the unexpected actions. Remaining rod drop testing was successfully performed utilizing the manual method. Prior to the next performance of BwVs1.3.4-1a on each unit, the testing relays will be included in the functional verification of the rod drop computer and control unit. Since these relays are not utilized during normal operation and it is not desirable to unnecessarily put the unit at risk, the relays will be replaced as required when tested prior to the next automatic rod drop testing sequence. Action requests have been initiated to track completion of this testing.

F. PREVIOUS OCCURRENCES:

There has been no previous occurrences of a model HG3A1004 relay failure at Braidwood Station. On August 4, 1995, as reported under Docket Number 45718095005, shutdown bank E rods were unable to be withdrawn due to open contacts on the withdraw relay model HG3A1003.

G. COMPONENT FAILURE DATA:

| <u>Manufacturer No.</u> | <u>Nomenclature</u> | <u>Model</u> | <u>MFG Part</u> |
|-------------------------|---------------------|--------------|-----------------|
| C.P. Clare & Co.        | Mercury Wetted      | None         | HG3A1004        |