

LICENSEE EVENT REPORT (LER)

| | | |
|--|--|--------------------|
| FACILITY NAME (1) Clinton Power Station | DOCKET NUMBER (2) 0 5 0 0 0 4 6 1 1 | PAGE (3) OF 0 4 |
|--|--|--------------------|

TITLE (4) Failure to Investigate the Consequences of Inadvertent Shorting of Terminations Prior to Performing a Temporary Connection Results in a Trip of the Reactor Protection System

| 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 4 | 1 5 | 8 9 | 8 9 | 0 2 | 0 0 | 0 5 | 1 1 | 8 9 | | | 0 5 0 0 0 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9)</td> <td style="width:15%;">4</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10) 0 0 0</td> <td></td> <td>20.402(b)</td> <td></td> <td>20.405(c)</td> <td><input checked="" type="checkbox"/></td> <td>50.73(a)(2)(iv)</td> <td></td> <td>73.71(b)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(ii)</td> <td></td> <td>50.36(c)(1)</td> <td></td> <td>50.73(a)(2)(v)</td> <td></td> <td>73.71(c)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(iii)</td> <td></td> <td>50.36(c)(2)</td> <td></td> <td>50.73(a)(2)(vii)</td> <td></td> <td rowspan="3">OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td></td> <td>20.405(a)(1)(iii)</td> <td></td> <td>50.73(a)(2)(ii)</td> <td></td> <td>50.73(a)(2)(viii)(A)</td> <td></td> </tr> <tr> <td></td> <td>20.405(a)(1)(iv)</td> <td></td> <td>50.73(a)(2)(iii)</td> <td></td> <td>50.73(a)(2)(viii)(B)</td> <td></td> </tr> <tr> <td></td> <td>20.405(a)(1)(v)</td> <td></td> <td>50.73(a)(2)(iii)</td> <td></td> <td>50.73(a)(2)(x)</td> <td></td> <td></td> </tr> </table> | | | | | | | | | | | | OPERATING MODE (9) | 4 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (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) | | 73.71(b) | | 20.405(a)(1)(ii) | | 50.36(c)(1) | | 50.73(a)(2)(v) | | 73.71(c) | | 20.405(a)(1)(iii) | | 50.36(c)(2) | | 50.73(a)(2)(vii) | | OTHER (Specify in Abstract below and in Text, NRC Form 366A) | | 20.405(a)(1)(iii) | | 50.73(a)(2)(ii) | | 50.73(a)(2)(viii)(A) | | | 20.405(a)(1)(iv) | | 50.73(a)(2)(iii) | | 50.73(a)(2)(viii)(B) | | | 20.405(a)(1)(v) | | 50.73(a)(2)(iii) | | 50.73(a)(2)(x) | | |
| OPERATING MODE (9) | 4 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (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) | | 73.71(b) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 20.405(a)(1)(ii) | | 50.36(c)(1) | | 50.73(a)(2)(v) | | 73.71(c) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 20.405(a)(1)(iii) | | 50.36(c)(2) | | 50.73(a)(2)(vii) | | OTHER (Specify in Abstract below and in Text, NRC Form 366A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 20.405(a)(1)(iii) | | 50.73(a)(2)(ii) | | 50.73(a)(2)(viii)(A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 20.405(a)(1)(iv) | | 50.73(a)(2)(iii) | | 50.73(a)(2)(viii)(B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 20.405(a)(1)(v) | | 50.73(a)(2)(iii) | | 50.73(a)(2)(x) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|---|--|
| NAME S. E. Razor, Director-Plant Maintenance, extension 3204 | TELEPHONE NUMBER AREA CODE: 2 1 7 9 3 5 - 8 8 8 1 |
|---|--|

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)

| | |
|---|--|
| <input type="checkbox"/> 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)

ABSTRACT

A trip of the reactor protection system (RPS) occurred due to personnel error when technicians shorted two pins of a digital signal conditioner (DSC) together. On April 15, 1989, with the plant in Mode 4 (COLD SHUTDOWN), during Division II instrument response time testing for turbine control and stop valves, technicians determined that the polarity of the test equipment connections to the DSC pins was reversed. To reverse the polarity, technicians began disconnecting the connections. While doing this, the technicians shorted adjacent positive and negative pins together resulting in a loss of power to all Division II RPS circuits and initiation of an RPS trip. The cause of this event is attributed to personnel error. The supervisor of the technicians recognized that inadvertent shorting of the DSC pins was possible but failed to investigate the consequences of such shorting. Had the supervisor investigated the consequences, the event would have been prevented. Corrective actions include counselling the supervisor of the technicians involved in this event, revising the surveillance test procedure to identify the equipment and method that shall be used when connecting test equipment leads to the DSC pins, and instructing personnel on actions to be taken when attaching temporary connections involving a recognized high risk of incorrect connection.

8905170260 890511
PDR ADOCK 05000461
S FDC

DE 9/11

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

| | | | | | | |
|--|--|----------------|------------------------------|--------------------------|----------|----|
| FACILITY NAME (1) Clinton Power Station | DOCKET NUMBER (2) 0 5 0 0 0 4 6 1 | LER NUMBER (6) | | | PAGE (3) | |
| | | YEAR 8 9 | SEQUENTIAL NUMBER - 0 2 0 | REVISION NUMBER - 0 0 | | OF |

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

DESCRIPTION OF EVENT

On April 15, 1989, the plant was in Mode 4 (COLD SHUTDOWN) at approximately 115 degrees Fahrenheit and atmospheric pressure. The "D" intermediate range monitor (IRM) [MON] of the Neutron Monitoring System [IG] was in a tripped condition awaiting post maintenance calibration testing.

In preparation for Surveillance Test 9431.21, "Turbine Control and Stop Valves Scram Response Time Test", for Division II, Control and Instrumentation (C&I) technicians connected the test equipment to the outputs of the Turbine Control Valve "B" and the Turbine Stop Valve Number 2 Digital Signal Conditioners (DSCs). A bayonet-type connector [CON] was used to attach a test equipment lead to each of four pins on the DSCs.

While reviewing the test equipment chart traces during surveillance test 9431.21, C&I technicians determined that the polarity of the test equipment leads was reversed; the positive leads of the test equipment were connected to the negative DSC pins and the negative leads of the test equipment were connected to the positive DSC pins.

After identifying the correct polarity of the DSC pins, the C&I technicians began disconnecting the test equipment lead from each of the four DSC pins. At approximately 1249 hours, while disconnecting the last of the four leads from its connection to a negative DSC pin, the bayonet-type connector apparently touched an adjacent positive DSC pin causing a short to ground. The short to ground caused a fuse [FU] in a DSC power supply to blow, resulting in a loss of power to all Division II Reactor Protection System (RPS) [JC] circuits and an automatic trip of the RPS. All control rods were already fully inserted.

The RPS trip occurred because the loss of power to the Division II RPS circuits combined with the already tripped condition of the "D" IRM (Division IV) to satisfy the two-out-of-four trip logic necessary to initiate an RPS trip signal.

Following the RPS trip, performance of surveillance test 9431.21 was immediately suspended. At 1411 hours, the blown fuse was identified and replaced and the RPS logic was reset.

The self test system (STS) was used to verify that the Division II RPS circuits were functioning properly. The STS identified that all Division II RPS circuits were functioning properly.

At approximately 2000 hours, C&I technicians completed restoration of the plant from surveillance test 9431.21.

LISS-SEE EVENT REPORT (LER) TEXT CONTINUATION

| | | | | | | |
|--|--|----------------|-------------------|-----------------|----------|----------|
| FACILITY NAME (1) Clinton Power Station | DOCKET NUMBER (2) 0 5 0 0 0 4 6 1 | LER NUMBER (8) | | | PAGE (3) | |
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | |
| | | 8 9 | - 0 2 0 | - 0 0 | 0 3 | OF 0 4 |

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

No automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition. No other equipment or components were inoperable at the start of this event such that their inoperable condition contributed to this event.

CAUSE OF EVENT

The cause of this event is attributed to personnel error by a utility C&I technician supervisor.

Since, by design, the DSC pins are very close together (one-eighth of an inch apart), performing surveillance test 9431.21 creates a high risk for shorting adjacent DSC pins together and actuating protective systems. Although the C&I technicians who were performing surveillance test 9431.21 had not performed this surveillance test before, they were experienced in similar testing techniques. In preparation for performing this surveillance test, the technicians recognized that it would be difficult to attach the lead connectors of the test equipment to the DSC pins without simultaneously touching adjacent DSC pins. The technicians tried to attach the leads to the DSC pins using methods other than the bayonet-type connectors but determined that the other methods were not acceptable. The technicians then contacted their supervisor because their ability to complete the connection was questionable. The supervisor evaluated the connection of the leads to the DSC pins and determined that the surveillance should be performed using the bayonet-type connectors.

The supervisor of the C&I technicians recognized that the potential existed for shorting adjacent DSC pins together when attaching test equipment but he failed to investigate the consequences of such shorting. Had the supervisor fully investigated these consequences he would have identified the potential for a loss of power to the Division II RPS circuits. The Shift Supervisor would have been informed of the potential loss of power and, recognizing that the Division IV IRM channel of RPS was in a tripped condition, he would have taken appropriate action to prevent the RPS trip.

CORRECTIVE ACTION

The C&I supervisor involved in this event has been counselled on this event.

All C&I maintenance technicians and supervisors will be briefed on this event. This briefing will instruct these personnel that when attaching temporary connections involving a recognized high risk for incorrect connection with no feasible alternative, personnel should determine the consequences of a possible incorrect connection and then advise the Shift Supervisor (SS) of these consequences. The SS will then evaluate the

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

| | | | | | | |
|--|--|----------------|-------------------|-----------------|----------|----------|
| FACILITY NAME (1) Clinton Power Station | DOCKET NUMBER (2) 0 5 0 0 0 4 6 1 | LER NUMBER (6) | | | PAGE (3) | |
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | |
| | | 8 9 | - 0 2 0 | - 0 0 | 0 4 | OF 0 4 |

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

consequences of the possible incorrect connection for impact on current plant conditions. This briefing is scheduled to be completed by June 1, 1989.

Surveillance test procedure 9431.21 has been revised to require the use of insulated slip-on connectors for connecting test equipment leads to the DSC outputs and to require the installation of insulating sleeves on adjacent DSC pins to ensure that test equipment leads do not short adjacent pins.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(iv) because of the automatic initiation of the RPS.

The Division II RPS circuitry was inoperable from approximately 1249 hours to 1411 hours on April 15, 1989. The "D" IRM was calibrated with satisfactory results and was declared operable at 1400 hours on April 16, 1989.

Assessment of the safety consequences and implications of this event indicates that this event was not safety significant. All equipment functioned as designed to place the plant in a safe and stable condition.

ADDITIONAL INFORMATION

LER 89-005-00 discusses an automatic containment isolation that occurred when a technician inadvertently shorted a relay to ground while installing a jumper on the relay. The relay is located such that the jumper connectors can not be seen by the technician as the connectors are attached. Corrective action associated with LER 89-005-00 requires C&I technicians to contact their supervision when the ability to complete a termination is questionable. This corrective action was followed during the event described in LER 89-020-00.

For further information regarding this event, contact S. E. Rasor, Director - Plant Maintenance at (217) 935-8881, extension 3204.

U-601447
L45-89(05-11)-LP
2C.220

ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

May 11, 1989

10CFR50.73

Docket No. 50-461

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

Subject: Clinton Power Station - Unit 1
Licensee Event Report No. 89-020-00

Dear Sir:

Please find enclosed Licensee Event Report No. 89-020-00:
Failure to Investigate the Consequences of Inadvertent Shorting of
Terminations Prior to Performing a Temporary Connection Results in a
Trip of the Reactor Protection System. This report is being submitted
in accordance with the requirements of 10CFR50.73.

Sincerely yours,

A handwritten signature in dark ink, appearing to read 'D. L. Holtzscher'.

D. L. Holtzscher
Acting Manager -
Licensing and Safety

RSF/krm

Enclosure

cc: NRC Resident Office
NRC Region III, Regional Administrator
INPO Records Center
Illinois Department of Nuclear Safety
NRC Clinton Licensing Project Manager

IE22
1/1