

## LICENSEE EVENT REPORT

CONTROL BLOCK: \_\_\_\_\_ (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
0 1 I A D A C 1 2 0 0 - 0 0 0 0 0 0 - 0 0 3 4 1 1 1 1 1 1 4 5  
LICENSEE CODE LICENSE NUMBER LICENSE TYPE CAT 56

CONT

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
0 1 L 6 0 5 0 0 0 3 3 1 7 0 4 2 5 8 3 8 0 5 1 0 8 3 9  
REPORT SOURCE DOCKET NUMBER EVENT DATE REPORT DATE

## EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 While in cold shutdown, with all rods inserted, the mode switch was move

0 3 d from refuel to shutdown. A full scram should have been received. Howev

0 4 er, the A system did not trip. A manual scram was inserted by the operat

0 5 or and a full scram achieved. As the plant was in cold shutdown, there w

0 6 as no effect on plant operation. No previous similar occurrence.

0 7

0 8

0 9

SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP. SUBCODE VALVE SUBCODE

0 9 I A 11 B 12 C 13 R E L A Y X 14 A 15 Z 16

17 LER/RO REPORT NUMBER 18 3 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO.

18 3 20 1 2 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NPRO-4 FORM SUB PRIME COMP. SUPPLIER COMPONENT MANUFACTURER

B 18 Z 19 Z 20 Z 21 0 0 0 0 Y 23 N 24 N 25 G 0 8 0 26

## CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The shutdown scram reset interlock failed due to faulty solder connectio

1 1 ns on a rectifier. This caused the mode switch shutdown scram contact to

1 2 be bypassed while in refuel and shutdown modes. The faulty connections w

1 3 ere resoldered and system tested satisfactorily. All similar connections

1 4 on control room panels have been examined and deficiencies corrected.

1 5 FACILITY STATUS 16 POWER 17 OTHER STATUS 18 METHOD OF DISCOVERY 19 DISCOVERY DESCRIPTION 20

1 5 G 28 0 0 C 29 NA 30 A 31 Operator Observation 32

1 6 ACTIVITY CONTENT 17 RELEASED OF RELEASE 18 AMOUNT OF ACTIVITY 19 LOCATION OF RELEASE 20

1 6 Z 33 Z 34 NA 35 NA 36

1 7 PERSONNEL EXPOSURES 18 NUMBER 19 TYPE 20 DESCRIPTION 21

1 7 0 0 0 37 Z 38 NA 39

1 8 PERSONNEL INJURIES 19 NUMBER 20 DESCRIPTION 21

1 8 0 0 0 40 NA 41

1 9 LOSS OF OR DAMAGE TO FACILITY 20 TYPE 21 DESCRIPTION 22

1 9 Z 42 NA 43

2 0 PUBLICITY 21 ISSUED DESCRIPTION 22

2 0 N 44 NA 45

NAME OF PREPARER Daniel R. Kibler

PHONE: 319-851-7306

NRC USE ONLY

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DUANE ARNOLD ENERGY CENTER

Iowa Electric Light and Power Company

Licensee Event Report - Supplemental Data

Docket No. 050-0331

Licensee Event Report Date: 5-10-83

Reportable Occurrence No: 83-012

DESCRIPTION OF EVENT:

On April 26, 1983, while the plant was in cold shutdown with all rods inserted, the mode switch was moved from the refuel position to the "shutdown" position. When the mode switch is moved to the "shutdown" position from any position, a full scram should occur. In this case, however, only a half scram was received. The "A" RPS system did not trip. An annunciator indicating that the mode switch shutdown scram bypass was activated was also noted. This bypass is normally activated 2 seconds after the mode switch is placed in the "shutdown" position. It is unclear if this annunciator was illuminated prior to placing the mode switch in the "shutdown" position. The operator subsequently initiated a successful manual scram. Since the plant was in cold shutdown (with all rods fully inserted) at the time of the event, there was no effect on the safety of the plant.

CAUSE OF THE EVENT:

Troubleshooting was initiated to determine the cause of the event. A visual inspection was made of relays and fuses in the 1C15 and 1C17 panels with no discrepancies found. The proper positioning of the contacts on switch C71A-S1, drawing 791E414RS, while in the "shutdown" position was verified. The mode switch was repositioned to the "refuel" position and returned to the shutdown position, while the C71A-K16A and K17A relays were observed. No relay action was observed during this evolution. When the wire tray cover in 1C15 was removed to inspect the wiring to K17A, the relay picked up. A voltage of 87.5 VDC was measured across the relay coil. Further investigation revealed that the four wiring connections to the rectifier bridge associated with the K17A relay were "cold soldered". Three of the connections were loose and had very little solder on the connection. The fourth connection was firm, but the soldering was poor. Moving these wires reproduced the fault and 0.0 VDC was measured across the coil of K17A. Deenergizing K17A causes the shutdown scram reset interlock circuit to bypass the mode switch shutdown scram contacts. This condition prevented the scram from occurring when the mode switch was placed in the "shutdown" position. No evidence of any condition which would have caused the deterioration of the solder joints was found. There is no record of failure of the K17A relay, or of other maintenance being performed on the relay.

No other scram function was effected by this problem. All other required RPS functions were available at the time of the event.

DUANE ARNOLD ENERGY CENTER

Iowa Electric Light and Power Company

Licensee Event Report - Supplemental Data

Docket No. 050-0331

Licensee Event Report Date: 5-10-83

Reportable Occurrence No: 83-012

CORRECTIVE ACTION:

The solder connections on the rectifier bridge were resoldered. Proper voltage was measured across the bridge output to the K17A relay. The wave forms across the bridge for K17A and K17B were observed with an oscilloscope and were verified to be consistent. The circuit was tested twice by cycling the mode switch to the "refuel" position and returning it to the "shutdown" position. The relays and associated annunciators were observed to function properly. The time delay for the mode switch shutdown scram bypass was measured with a stopwatch as 2.3 seconds. The solder connections on the rectifier associated with the K17B relay were inspected and found to be satisfactory.

A followup inspection was made of all connections in the control room panels. This inspection revealed some additional deficiencies. Only one connection was found to be electrically broken. This connection was on an HVAC annunciator panel on control room Panel 1C23. The remaining deficient connections were of suspect quality, but would have performed their intended functions. None of the problems found during this inspection were in the reactor protection system. All deficiencies discussed have been corrected.

A directive has been issued to all operators from the operations supervisor reminding operators that they must be aware of which annunciators are illuminated and why, at all times.

Iowa Electric Light and Power Company

May 10, 1983

DAEC-83-364

Mr. James G. Keppler  
Regional Administrator  
Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, IL 60137

Subject: Licensee Event Report No. 83-012  
(14 day)

File: A-118a, TE-2

Dear Mr. Keppler:

In accordance with Appendix A to Operating License DPR-49, Technical Specifications and Bases for Duane Arnold Energy Center and Regulatory Guide 10.1, please find attached a copy of the subject Licensee Event Report.

Very truly yours,

*BR York for*

Daniel L. Mineck  
Plant Superintendent - Nuclear  
Duane Arnold Energy Center

DLM/DRK/pf

Docket 50-331

attachment

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

NRC Resident Inspector - DAEC

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MAY 12 1983