NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/88

LICENSEE EVENT REPORT (LER)

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

TITLE (4) Faulty Card Select Decoder Causes Spurious Low Reactor Water Level Trip of Instrument Air Isolation Valves During Drywell Pressure Channel Calibration.

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	3 0	8 8	8 8	—	0 1 3	—	0 0	0 5	1 8	8 8	None	0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)			
POWER LEVEL (10)	0 1 0	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	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)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	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	TELEPHONE NUMBER
T. J. Camilleri, Assistant Manager - Plant Maintenance x3204	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	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	B M	D E C	G 0 8 0	N							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

ABSTRACT

On April 30, 1988 with the plant in Mode 4 (COLD SHUTDOWN) two instrument air system containment isolation valves automatically isolated as a result of a spurious Division I low reactor water level (level 1) trip signal. This isolation occurred while technicians were performing a channel calibration surveillance on a Division I drywell pressure channel. Immediately after the isolation occurred, control room operators directed the technicians to stop the surveillance and to return the channel to its normal configuration. The trip signal was reset, the valves were reopened, and an investigation was begun to determine the cause of the isolation. During the calibration, technicians noticed that a trip indicator light on an adjacent analog trip module (ATM) for Division I low reactor water level was flickering dimly. This reactor water level ATM is adjacent to the drywell pressure ATM. The investigation determined that a faulty card select decoder caused an interaction between these two ATMs that resulted in a spurious trip of the Division I reactor water level ATM. The faulty card select decoder was replaced and the ATMs were satisfactorily tested. This faulty card select decoder will be returned to its vendor for diagnostic testing to determine the exact cause of its failure.

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(9-83)

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Clinton Power Station	0 5 0 0 0 4 6 1	8 8	— 0 1 3	— 0 0	0 2 OF 0 4

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

DESCRIPTION OF EVENT

On April 30, 1988, at approximately 0701 hours, with the plant in Mode 4 (COLD SHUTDOWN), at approximately 170 degrees Fahrenheit and atmospheric pressure, instrument air system [LD] containment isolation [JM] valves [ISV] 1IA005 and 1IA008 automatically isolated as a result of a spurious Division I low reactor water level (level 1) trip signal. This isolation occurred while Control and Instrument (C&I) technicians were performing a channel calibration surveillance on Division I drywell pressure channel 1B21-N094A[PI] in accordance with Surveillance Procedure 9433.10, EMERGENCY CORE COOLING SYSTEM (ECCS) [BM] DRYWELL PRESSURE B21-N094A(E) CHANNEL CALIBRATION.

The technicians had just completed the calibration and were preparing to record the "as left" data when control room operators informed them that the instrument air valves had isolated. The operators immediately directed the technicians to stop the surveillance and return the drywell pressure channel to its normal configuration. Control room operators then reset the isolation trip signal, reopened the valves, and began an investigation to determine the cause of the isolation.

No automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition. No 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 a faulty card select decoder [DEC]. The faulty decoder caused a spurious trip of the Division I low reactor water level ATM 1B21-N691A, resulting in the isolation of the instrument air valves.

This event was reviewed at a critique at 0845 hours on April 30. The critique identified that during the calibration surveillance, numerous trip signals were inserted into Division I drywell pressure ATM 1B21-N694A. The critique further identified that during the surveillance, C&I technicians in the control room noticed that a trip indicator light [IL] on analog trip module (ATM) [IMOD] 1B21-N691A for Division I low reactor [RCT] water level was flickering dimly. ATM 1B21-N691A is adjacent to ATM 1B21-N694A.

As a result of the critique, an action plan was developed to complete the Division I drywell pressure surveillance. The plan required technicians to carefully monitor the Division I reactor water level circuit for any interaction during the drywell pressure surveillance. In addition, the plan required that a calibration check of the Division I reactor water level channel be performed followed by replacement and calibration of Division I reactor water level ATM 1B21-N691A in accordance with maintenance work request (MWR) C46800. This MWR was initiated at approximately 1200 hours on April 30 and work in accordance with this MWR began at approximately 2200 hours on April 30.

At approximately 1040 hours on May 1, during calibration of the new ATM 1B21-N691A, technicians observed flickering of the indicator light on adjacent Division I reactor water level ATM 1B21-N691E. The calibration activity was immediately stopped. Schematic drawings were researched to determine what could cause an interaction between an ATM being tested and an ATM physically located in the next card slot to the right. (ATM 1B21-N691E is located to the right of ATM 1B21-N691A which is located to the right of ATM 1B21-N694A.) This research determined that based on the physical location of the ATMs, the only component which could cause an interaction between them was the card select decoder associated with ATMs located in the same row of the same panel [PL].

CORRECTIVE ACTION

The card select decoder at location P661-D-A13-A103 was replaced in accordance with MWR C46800. The three ATMs were tested again and no interaction (flickering indicator lights) was observed on adjacent ATMs. The Division I drywell pressure and reactor water level channels were restored by approximately 2130 hours on May 1, 1988.

Since the software required for complete decoder testing and diagnostics is not available at Clinton Power Station (CPS), Illinois Power Company (IP) is unable to determine why the decoder causes the interaction between adjacent ATMs. For this reason, IP is returning the decoder to the vendor, General Electric, for diagnostic testing to determine the exact cause of its failure.

IP will submit a supplemental report following evaluation of the vendor diagnostic testing results if those results significantly change the information provided in this report.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73 (a)(2)(iv) due to a condition that resulted in an automatic actuation of an Engineered Safety Feature.

Assessment of the safety consequences and implications of this event indicates that the event was not safety significant for existing plant conditions or other plant modes or power levels. Events resulting from the loss of the instrument air system have been analyzed in Chapter 15 of the Final Safety Analysis Report, and the resulting transients were determined to be within the limits of the plant design.

The actuation logic for the instrument air isolation valves is one-out-of-two on low level 1 reactor water level.

ADDITIONAL INFORMATION

The faulty card select decoder is part number 147D8456 manufactured by General Electric Company.

There have not been any instrument air containment isolation valve actuations previously reported in a CPS LER that resulted from a similar cause.

For further information regarding this event, contact T. J. Camilleri, Assistant Manager - Plant Maintenance, at (217) 935-8881, extension 3204.

U-601189
L45-88(05-18)-LP
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ILLINOIS POWER COMPANY

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

10CFR50.73
May 18, 1988

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. 88-013-00

Dear Sir:

Please find enclosed Licensee Event Report No. 88-013-00: Faulty Card Select Decoder Causes Spurious Low Reactor Water Level Trip of Instrument Air Isolation Valves During Drywell Pressure Channel Calibration. This report is being submitted in accordance with the requirements of 10CFR50.73.

Sincerely yours,

F. A. Spangenberg, III
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

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