AEC DISTRIBUTION FOR PART 50 DOCKET MATERIAL
(TEMPORARY FORM)

CONTROL NO: 6598

FILE:

FROM:	DATE OF DOC	DATE REC'D	LTR	TWX	RPT	OTHER
Iowa Electric Light & Power Company Cedar Rapids, Iowa G. G. Hunt	7-12-74	7-19-74	X			

TO:	ORIG	CC	OTHER	SENT AEC PDR	SENT LOCAL PDR
Mr. Keppler	No Orig			X	X

CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
	XXXXX			1	50-331

DESCRIPTION:
Ltr trans the following:

ENCLOSURES:
Abnormal Occurrence No. AO-50-331/74-14, on 7-2-74, regarding excessive control rod drift.

(1 cy rec'd)

Do Not Remove
ACKNOWLEDGED

PLANT NAME: Duane Arnold

FOR ACTION/INFORMATION 7-19-74 AB

BUTLER(L) W/ Copies	SCHWENCER(L) W/ Copies	ZIEMANN(L) W/ Copies	REGAN(E) W/ Copies
CLARK(L) W/ Copies	STOLZ(L) W/ Copies	DICKER(E) W/ Copies	LEAR(L) W/7 Copies
PARR(L) W/ Copies	VASSALLO(L) W/ Copies	KNIGHTON(E) W/ Copies	W/ Copies
KNIEL(L) W/ Copies	PURPLE (L) W/ Copies	YOUNGBLOOD(E) W/ Copies	W/ Copies

INTERNAL DISTRIBUTION

REG FILE	TECH REVIEW	DENTON	LIC ASST	A/T IND
AEC PDR	HENDRIE	GRIMES		BRAITMAN
OGC, ROOM P-506A	SCHROEDER	GAMMILL	DIGGS (L)	SALTZMAN
MUNTZING/STAFF	MACCARY	KASTNER	GEARIN (L)	B. HURT
CASE	KNIGHT	BALLARD	GOULBOURNE (L)	
GIAMBUSSO	PAWLICKI	SPANGLER	KREUTZER (E)	PLANS
BOYD	SHAO		LEE (L)	MCDONALD
MOORE (L)(BWR)	STELLO	ENVIRO	MAIGRET (L)	CHAPMAN
DEYOUNG(L)(PWR)	HOUSTON	MULLER	REED (E)	DUBE w/input
SKOVHOLT (L)	NOVAK	DICKER	SERVICE (L)	E. COUPE
GOLLER(L)	ROSS	KNIGHTON	SHEPPARD (L)	D. THOMPSON (2)
P. COLLINS	IPPOLITO	YOUNGBLOOD	SLATER (E)	KLECKER
DENISE	TEDESCO	REGAN	SMITH (L)	EISENHUT
REG OPR	LONG	PROJECT LDR	TEETS (L)	
FILE & REGION(3)	LAINAS		WILLIAMS (E)	
MORRIS	BENAROYA	HARLESS	WILSON (L)	
STEELE	VOLLMER			

EXTERNAL DISTRIBUTION

LV

1 - LOCAL PDR Cedar Rapids, Iowa
1 - TIC (ABERNATHY)
1 - NSIC(BUCHANAN)
1 - ASLB
1 - P. R. DAVIS (AEROJET NUCLEAR)
16 - CYS ACRS ~~HOLDING~~ SENT TO LIC ASST. S. TEETS FOR DIST.

(1)(2)(10)-NATIONAL LAB'S
1-ASLBP(E/W Bldg,Rm 529)
1-W. PENNINGTON, Rm E-201 GT
1-CONSULTANT'S
NEWMARK/BLUME/AGBABIAN
1-GERALD ULRIKSON...ORNL
1-B & M SWINEBROAD, Rm E-201 GT

1-PDR-SAN/LA/NY
1-LIBRARIAN
BROOKHAVEN NAT. LAB
1-AGMED(Ruth Gussman)
RM-B-127, GT.
1-RD..MULLER..F-309 GT

Regulatory File Cy.

IOWA ELECTRIC LIGHT AND POWER COMPANY

General Office

CEDAR RAPIDS, IOWA

DUANE ARNOLD ENERGY CENTER
PALO, IOWA

July 12, 1974

DAEC - 74 - 248

Mr. James G. Keppler, Regional Director
Directorate of Regulatory Operations
U. S. Atomic Energy Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

50 - 331

SUBJECT: Abnormal Occurrence No. A050-331/74-14
FILE: A-118a

Dear Mr. Keppler:

In accordance with Appendix A to Operating License DPR-49, Technical Specifications and Bases for Duane Arnold Energy Center, please find enclosed a written report on the subject abnormal occurrence.

Very truly yours,

G.G. Hunt

Chief Engineer
Duane Arnold Energy Center

DLW/GGH/lh
Enclosure
CC: John O'Leary
C. W. Sandford
J. A. Wallace
E. L. Hammond
B. R. York
D. L. Wilson
H. W. Rehrauer-Chairman, Safety Committee
L. D. Root
J. R. Newman
B. L. Hopkins

6588

IOWA ELECTRIC LIGHT AND POWER COMPANY

General Office

CEDAR RAPIDS, IOWA

Subject: Abnormal Occurrence

Report Number: AO 50-331/74-14

Report Date: July 12, 1974

Occurrence Date: July 2, 1974

Facility: Duane Arnold Energy Center, Unit No. 1, Palo, Iowa

Identification of Occurrence

Excessive control rod drift identified in accordance with Section 1.4.d of the Technical Specifications.

Conditions Prior to Occurrence

Reactor at rated pressure and temperature approximately 30% thermal power.

Description of Occurrence

At 0446 hours, the control room operator initiated withdrawal of rod 18-27 from position 10 to 12 in accordance with the control rod sequence. When the operator observed that the rod continued to withdraw beyond position 12, he initiated a rod insert using the normal insert switch. At approximately the same time, the Rod Worth Minimizer (RWM) initiated a rod select, insert and withdraw block and the rod appeared to stop at position 14. The operator then attempted to clear the RWM block and reinsert the rod. When the block cleared, rod 18-27 began withdrawing again. The operator again attempted to insert the rod with the normal insert switch but it did not stop the withdraw. The rod stopped withdrawing at position 26. At 0448 hours, the rod was inserted to position 16. At 0450 hours, the rod was inserted from position 16 to 12. The control rod was later withdrawn from position 12 to 14, and 14 to 16 in accordance with the control rod sequence. No irregularities were noted. Control rod 18-27 remained at position 16 until 2300 hours, July 5, 1974, when the reactor was placed in the shutdown mode.

Designation of Apparent Cause of Occurrence

The investigation into the apparent cause of the occurrence has not been completed. However, three potential causes of the occurrence have been identified and evaluated as follows:

1. Failure of the Directional Control Valve in the Hydraulic Control Valve for control rod 18-27. If this valve failed to close, the control rod would continue to drift until the valve went to the closed position. The valve will be examined to determine if it could have failed at the time of the occurrence.

2. Failure of withdraw timing relay K5. If the contacts in this relay failed to open, the control rod would continue to drift until the contacts were opened. Evaluation of the observed control rod response during the occurrence and evaluation of the appropriate electrical logics seem to indicate that this was the likely cause of the occurrence. The relay is to be returned to the vendor for evaluation to determine if it could have failed at the time of the occurrence.

3. Failure in the circuit board providing power to withdraw timing relay K5. A failure in this board could have prevented the relay contacts from opening and the control rod would have continued to withdraw. The circuit board will be examined for component failure.

Following the occurrence, it was suspected another cause of the occurrence could have been the failure of the collet fingers to latch. However, this cause was eliminated by subsequent testing of the collet fingers.

Results of the investigation to determine the single apparent cause of the occurrence will be submitted in a supplementary report.

Analysis of Occurrence

It has been determined that the occurrence did not present a hazard from the standpoint of public health and safety.

The occurrence did not cause any significant increase in local core power levels. This conclusion is supported by the fact that the Rod Block Monitor did not initiate a rod block during the occurrence.

Corrective Action

The following items summarize those corrective actions initiated as a result of the occurrence.

1. On July 3, 1974, the Operations Supervisor issued an order to operations personnel to prohibit further control rod withdrawals until the control rod drift problem was resolved. Also, operations personnel were directed to keep a full-out rod selected.

2. Withdraw timing relay K5, General Electric type 35AT 6004 W1 was replaced.

3. Directional Control Valve No. 122 in the Hydraulic Control Unit for control rod 18-27 was replaced.

4. The circuit board providing power to relay K5, was replaced.

On July 7, 1974, following the installation of the above parts and prior to reactor start-up, proper operation of control rod 18-27 during insert and withdraw operations was verified.

Conclusion

On July 12, 1974, the DAEC Operations Committee reviewed and approved this report including corrective actions. The Committee concluded that the occurrence did not present a hazard to the health and safety of the public.

G. G. Hunt
Chief Engineer
Duane Arnold Energy Center

DLW/MS/GGH/lh