

50-331

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

FILE NUMBER  
INCIDENT REPORT

TO:  
Mr. James G. Keppler

FROM:  
Iowa Elec. Light & Power Company  
Cedar Rapids, Iowa  
Ellery L. Hammond

DATE OF DOCUMENT  
5/13/77

DATE RECEIVED  
6/8/77

LETTER  
 ORIGINAL  
 COPY

NOTORIZED  
 UNCLASSIFIED

PROP

INPUT FORM

NUMBER OF COPIES RECEIVED  
1 SIGNED

DESCRIPTION

**ACKNOWLEDGED**

**DO NOT REMOVE**

PLANT NAME: (1-P)  
Duane Arnold  
RJL

ENCLOSURE

Licensee Event Report (R0 50-331/76-05) on 1/14/77 (update report) concerning RCIC MO 2516 being discovered to be separated from the motor operator due to broken bolts....

(2-P)

NOTE: IF PERSONNEL EXPOSURE IS INVOLVED SEND DIRECTLY TO KREGER/J. COLLINS

FOR ACTION/INFORMATION

BRANCH CHIEF:	LEAR
W/3 CYS FOR ACTION	
LIC. ASST.:	PARRIS/11
W/1 CYS	
ACRS /6 CYS HOLDING/SENT	AS CAT B

INTERNAL DISTRIBUTION

REG FILE			
NRC PDR			
I & E (2)			
MIPC			
SCHROEDER/IPPOLITO			
HOUSTON			
NOVAK/CHECK			
GRIMES			
BUTLER			
HANAUER			
TEDESCO/MACCARY			
EISENHUT			
BAER			
SHAO			
VOLLMER/BUNCH			
KREGER/J. COLLINS			

EXTERNAL DISTRIBUTION

LPDR: CEDAR RAPIDS 1A	
TIC:	
NSIC:	

CONTROL NUMBER

771590245

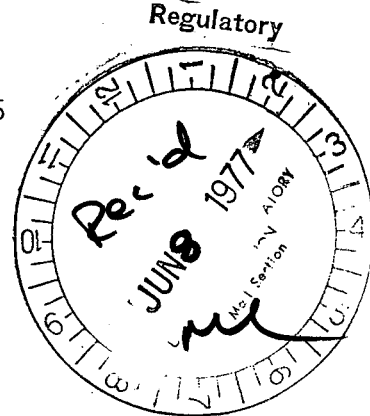
As 4

60

*D. Larkin*

# IOWA ELECTRIC LIGHT AND POWER COMPANY

DUANE ARNOLD ENERGY CENTER  
P. O. Box 351  
Cedar Rapids, Iowa 52406  
May 13, 1977  
DAEC-77- 267



File Cy.

Mr. James G. Keppler, Director  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission - Region III  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

Subject: Licensee Event Report No. UPDATE REPORT - Previous  
(30 day) Report Date 021176  
RO 76-05.

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 and Regulatory Guide 10.1, please find attached a copy of the subject Licensee Event Report. (Total of 3 copies transmitted)

Very truly yours,

*Ellery L. Hammond*

Ellery L. Hammond  
Chief Engineer  
Duane Arnold Energy Center

Docket 50-331

attachment

ELH/DLW/mg

cc: Director, Office of Inspection and Enforcement (30)  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Director, Management Information and Program Control (3)  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

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MAY 19 1977

771590245

# LICENSEE EVENT REPORT

UPDATE REPORT  
Previous Report Date  
021176

CONTROL BLOCK: 

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(PLEASE PRINT ALL REQUIRED INFORMATION)

LICENSEE NAME: 

01	I	A	D	A	C	1
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 LICENSE NUMBER: 

0	0	-	0	0	0	0	0	-	0	0
---	---	---	---	---	---	---	---	---	---	---

 LICENSE TYPE: 

4	1	1	1	1
---	---	---	---	---

 EVENT TYPE: 

0	3
---	---

REPORT TYPE: 

L
---

 REPORT SOURCE: 

L
---

 DOCKET NUMBER: 

0	5	0	-	0	3	3	1
---	---	---	---	---	---	---	---

 EVENT DATE: 

0	1	1	4	7	6
---	---	---	---	---	---

 REPORT DATE: 

0	5	1	2	7	7
---	---	---	---	---	---

### EVENT DESCRIPTION

02 | During normal operation, RCIC M02516 was discovered to be separated  
03 | from the motor operator due to broken bolts. RCIC operability unaf  
04 | fected since normal flow path available from CST. Mounting bolts re  
05 | placed and retorqued within 4 hours. All safety related valve moto  
06 | r operators in plant checked for proper torque on mounting bolts.

SYSTEM CODE: 

C	E
---	---

 CAUSE CODE: 

A
---

 COMPONENT CODE: 

V	A	L	V	O	P
---	---	---	---	---	---

 PRIME COMPONENT SUPPLIER: 

A
---

 COMPONENT MANUFACTURER: 

A	3	9	5
---	---	---	---

 VIOLATION: 

N
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### CAUSE DESCRIPTION

08 | Bolt failure due to metal fatigue induced by vibrational tensile  
09 | loads resulting from under-torquing during installation of motor  
10 | operator on valve.

FACILITY STATUS: 

E
---

 % POWER: 

0	8	3
---	---	---

 OTHER STATUS: 

NA
----

 METHOD OF DISCOVERY: 

B
---

 DISCOVERY DESCRIPTION: 

NA
----

FORM OF ACTIVITY RELEASED: 

Z
---

 CONTENT OF RELEASE: 

Z
---

 AMOUNT OF ACTIVITY: 

NA
----

 LOCATION OF RELEASE: 

NA
----

### PERSONNEL EXPOSURES

13 | NUMBER: 

0	0	0
---	---	---

 TYPE: 

Z
---

 DESCRIPTION: 

NA
----

### PERSONNEL INJURIES

14 | NUMBER: 

0	0	0
---	---	---

 DESCRIPTION: 

NA
----

### OFFSITE CONSEQUENCES

15 | 

NA
----

### LOSS OR DAMAGE TO FACILITY

16 | TYPE: 

Z
---

 DESCRIPTION: 

NA
----

### PUBLICITY

17 | 

NA
----

### ADDITIONAL FACTORS

18 | Event Desc. Cont. - Sample of valves to be inspected during next

19 | refuel for proper mounting bolt torque. (R076-05)

NAME: D. Wilson PHONE: 319-851-5611

DUANE ARNOLD ENERGY CENTER

Iowa Electric Light and Power Company

LICENSEE EVENT REPORT--Supplemental Data

Licensee Event Report Date: 011476

Reportable Occurrence No: UPDATE REPORT - Previous Report Date 021176

RO. 76-05

Description of Occurrence

During a routine plant inspection, the motor operator for RCIC suppression pool suction valve MOV2516 was found to be separated from the valve body. The socket head cap screws which secured the motor operator to the valve yoke had fractured and the valve operator had moved up the worm gear. The bolts were replaced and the valve was returned to operation approximately four hours later.

Cause of Occurrence

A metallurgical analysis of the broken cap screws determined that the probable failure mode was metal fatigue induced by vibrational tensile loading. The motor operator mounting bolts apparently were under-torqued during installation of the valve and this condition could have led to tensile impact loading with resultant fatigue failure.

Corrective Action

The four socket head cap screws on MOV 2516 were replaced with screws of equivalent specification and were torqued in accordance with vendor recommendations.

In addition, a special inspection program was initiated to verify that the motor operator mounting bolts for all safety related valves were torqued in accordance with vendor recommendations. The program involved determination of as-found torque values and retorquing as appropriate.

During the 1978 refuel outage, a sample of safety related valves will be selected for inspection to determine if there is time dependent variation in the torque values for motor operator mounting bolts. The valves to be inspected will be determined by the Licensee's Engineering Department. Additional corrective action will be initiated at that time if appropriate.

Analysis of Occurrence

The normal suction for the RCIC system is from the condensate storage tanks and the alternate suction is from the suppression pool. Since MOV 2516 is located in the suppression pool suction, the failure of the valve to open would not have prevented operation of the RCIC system.

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PROCESSING UNIT

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