

FORD 1

REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9102070004 DOC. DATE: 91/01/30 NOTARIZED: NO DOCKET #
 FACIL: 50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331
 AUTH. NAME AUTHOR AFFILIATION
 AXLINE, J. Iowa Electric Light & Power Co.
 HANNEN, R.L. Iowa Electric Light & Power Co.
 RECIP. NAME RECIPIENT AFFILIATION

DAVIS, A.B. Region 3 (Post 820201)

SUBJECT: LER 91-001-00: on 910106, manual scram shutdown of plant
 occurred. Caused by steam leak in heater bay due to break in
 2-inch extraction steam drain line. Pipe repaired. W/910130
 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD3-3 LA	1 1	PD3-3 PD	1 1
	HALL, J.R.	1 1		
INTERNAL:	ACNW	2 2	ACRS	2 2
	AEOD/DOA	1 1	AEOD/DSP/TPAB	1 1
	AEOD/ROAB/DSP	2 2	NRR/DET/ECMB 9H	1 1
	NRR/DET/EMEB 7E	1 1	NRR/DLPQ/LHFB11	1 1
	NRR/DLPQ/LPEB10	1 1	NRR/DOEA/OEAB	1 1
	NRR/DREP/PRPB11	2 2	NRR/DST/SELB 8D	1 1
	NRR/DST/SICB 7E	1 1	NRR/DST/SPLB8D1	1 1
	NRR/DST/SRXB 8E	1 1	REG FILE 02	1 1
	RES/DSIR/EIB	1 1	RGN3 FILE 01	1 1
EXTERNAL:	EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
	NRC PDR	1 1	NSIC MAYS, G	1 1
	NSIC MURPHY, G.A	1 1	NUDOCS FULL TXT	1 1

sub *AD 4*

Iowa Electric Light and Power Company

DCD

January 30, 1991
DAEC-91-0069

Mr. A. Bert Davis
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License DPR-49
Licensee Event Report #91-001

Gentlemen:

In accordance with 10 CFR 50.73 please find attached a copy of the subject
Licensee Event Report.

Very truly yours,

Rick L. Hannen 1-29-91
Rick L. Hannen
Plant Superintendent - Nuclear

RLH/JSA/pwj

cc: Director of Nuclear Reactor Regulation
Document Control Desk
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D. C. 20555

NRC Resident Inspector - DAEC

Dr. William R. Jacobs, Jr.
GDS Associates, Inc.
Suite 720
1850 Parkway Place
Marietta, GA 30068-8237

File A-118a

FE22

ATD 207 4004
408

120102

LICENSEE EVENT REPORT (LER)

EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1)

Duane Arnold Energy Center

DOCKET NUMBER (2)

0 5 0 0 0 3 3 1

PAGE (3)

1 OF 03

TITLE (4)

Manual Scram Shutdown of Plant Due to Steam Leak in the Heater Bay

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	1	0	9	1	9	1	0	0	1	None	0 5 0 0 0
0	1	0	6	9	1	9	1	0	0	1	0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)									
N		20.402(b)		20.405(c)	X	50.73(a)(2)(iv)		73.71(b)			
POWER LEVEL (10)	0.95	20.405(a)(1)(i)		50.38(c)(1)		50.73(a)(2)(v)		73.71(c)			
		20.405(a)(1)(ii)		50.38(c)(2)		50.73(a)(2)(vi)		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)(vii)(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)(ix)					

LICENSEE CONTACT FOR THIS LER (12)

NAME

Jeff Axline, Technical Support Engineer

TELEPHONE NUMBER

AREA CODE

3 1 9 8 5 1 - 7 6 0 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
B	SIE	PISIP		No					

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On January 6, 1991, with the plant operating at 95% power, a controlled reactor shutdown was initiated due to a steam leak in the heater bay. At 1107 operators rapidly reduced recirculation flow to minimum in preparation for insertion of a manual scram. The decision to manually scram was conservatively made to ensure heater bay temperatures would not challenge the Main Steam Line isolation setpoint of 200 degrees F. At 1113, with reactor power at approximately 60%, a manual scram was inserted.

The intermediate cause of this event was a break in a two inch extraction steam drain line just below the welded joint which attaches the drain line to a twelve inch extraction steam line. The cause for the break in the pipe was cyclic fatigue due to the relative movement of the two inch and twelve inch pipe during plant operation. The section of two inch pipe, where the break occurred, was replaced with a new pipe. The new pipe was constructed with an expansion loop to compensate for relative movement between the twelve and two inch pipes. This event had no effect on the safe operation of the plant. Following the scram the plant was quickly brought to a stable condition.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1) Duane Arnold Energy Center	DOCKET NUMBER (2) 05000331	LER NUMBER(6)			PAGE(3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		91	-001	-00	2	OF	3

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

I. DESCRIPTION OF EVENT:

On January 6, 1991, the plant was operating at 95% power. At 1014, a steam leak was discovered in the Turbine Building by Security and reported to Operations. Further investigation by Operations personnel confirmed a large leak in the heater bay. At this time a controlled reactor shutdown was initiated by reducing power with reactor recirculation flow. While power was being reduced via recirculation flow, heater bay temperatures were monitored. Between 1030 and 1100, temperatures had increased by approximately 20 degrees. At 1107 operators rapidly reduced recirculation flow to minimum in preparation for insertion of a manual scram (EIIS system code JM). The decision to manually scram was conservatively made to ensure heater bay temperatures would not challenge the Primary Containment Isolation System (PCIS) (EIIS system code JM) Group I (Main Steam Line) isolation setpoint of 200 degrees F. At 1113, with reactor power at approximately 60%, a manual scram was inserted. Shortly following the scram, a turbine trip occurred as expected, thus isolating the steam leak.

Following insertion of the scram, vessel level decreased, as expected, to less than 170 inches as a result of void reduction in the core. PCIS Group 2-5 isolations occurred as designed in response to level decreasing below 170 inches. Within approximately one minute level was restored above 170 inches. Throughout the event vessel level was maintained by the feedwater system between approximately 158 and 205 inches.

II. CAUSE OF EVENT

The intermediate cause of this event was a break in a two inch extraction steam (EIIS system code SE) drain line just below the welded joint which attaches the drain line to a twelve inch extraction steam line. The cause for the break in the pipe was cyclic fatigue due to the relative movement of the two inch and twelve inch pipe during plant operation.

III. ANALYSIS OF EVENT

This event had no effect on the safe operation of the plant. All automatic actions occurred as designed in response to the manually initiated scram. No Emergency Core Cooling Systems (ECCS) actuations occurred or were required. Following the scram the plant was quickly brought to a stable condition.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

EXPIRES: 4/30/92

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Duane Arnold Energy Center	05000331	91	- 001	- 00	3	OF	3

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

IV. CORRECTIVE ACTIONS

The section of two inch pipe, where the break occurred, was replaced with a new pipe. The new pipe was constructed with an expansion loop to compensate for relative movement between the twelve and two inch pipes.

As an additional action, an informational packet on this event will be distributed to appropriate site personnel to heighten awareness of a cyclic fatigue mechanism.

V. ADDITIONAL INFORMATION

A review of Licensee Event Reports since 1984 (when scrams became a reportable event) indicated no previous events, in which the plant was scrammed manually or automatically due to a steam leak. This event is being reported in accordance with 10 CFR 50.73 (a) (2) (iv).