

## ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9101080121 DOC.DATE: 90/12/27 NOTARIZED: NO DOCKET #  
 FACIL:50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331  
 AUTH.NAME AUTHOR AFFILIATION  
 MCGEE,R. 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 90-021-00:on 901204,RWCU sys 'B' side logic primary  
 containment isolation sys actuation occurred.Caused by high  
 HX room differential temp.Special test performed & new  
 isolation setpoint of 49 F determined.W/901227 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:

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	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

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Iowa Electric Light and Power Company

December 27, 1990  
DAEC-90-1069

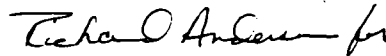
Mr. A. Bert Davis  
Regional Administrator  
Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, IL 60137

Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Op. License DPR-49  
Licensee Event Report #90-021

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  
Plant Superintendent - Nuclear

RLH/RMcG/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.  
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Marietta, GA 30068-8237

File A-118a

9101080121 901227  
PDR ADOCK 05000331  
S PDR

Duane Arnold Energy Center • 3277 DAEC Road • Palo, Iowa 52324 • 319/851-7611

040027



## 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-330), 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 0 3

TITLE (4) PCIS Group V Reactor Water Cleanup Isolation Due to Sensed High Heat Exchanger Room Differential Temperature

EVENT DATE (5)			LER NUMBER (5)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)	
12	04	90	90	021	00	12	27	90	None	0 5 0 0 0	
										0 5 0 0 0	

OPERATING MODE (6) N

POWER LEVEL (10) 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

20.402(b)	20.405(e)	X	60.73(a)(2)(iv)	73.71(b)
20.402(e)(1)(ii)	60.36(e)(1)		60.73(a)(2)(v)	73.71(e)
20.402(e)(1)(iv)	60.36(e)(2)		60.73(a)(2)(vi)	
20.405(a)(1)(iii)	60.73(a)(2)(i)		60.73(a)(2)(vii)(A)	OTHER (Specify in Abstract below and in Text, NRC Form 388A)
20.405(a)(1)(iv)	60.73(a)(2)(ii)		60.73(a)(2)(vii)(B)	
20.405(a)(1)(v)	60.73(a)(2)(iii)		60.73(a)(2)(viii)	

## LICENSEE CONTACT FOR THIS LER (12)

NAME  
Ronald McGee, Technical Support Specialist

TELEPHONE NUMBER  
AREA CODE 319 851-7602

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

## SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) ☐ NO ☒

EXPECTED SUBMISSION DATE (15)

MONTH YEAR

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

On December 4, 1990 at 1859 hours a Reactor Water Cleanup (RWCU) System ('B' side logic) Primary Containment Isolation System (PCIS Group V) actuation occurred. The plant was operating at 100% power. All automatic actions due to the isolation signal occurred.

The system actuated conservatively in response to a sensed high room differential temperature caused by a cold ambient inlet temperature.

Corrective actions for this event include performance of a Special Test which determined a new isolation setpoint and data collection which will be utilized to calculate new maximum allowable setpoints in an effort to preclude further unwarranted isolations.

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

EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.6 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 90	SEQUENTIAL NUMBER - 021	REVISION NUMBER - 00	2	OF 3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

**I. DESCRIPTION OF EVENT:**

On December 4, 1990 at 1859 hours a Reactor Water Cleanup (RWCU) System ('B' side logic) Primary Containment Isolation System (PCIS Group V) actuation occurred. The plant was operating at 100% power. All automatic actions due to the isolation signal occurred.

**II. CAUSE OF EVENT**

The differential temperature monitored by Differential Temperature Switch TDS 2743F (Steam Leak Detection System), which measures the temperature rise across the RWCU Heat Exchanger Room, exceeded its 43 degree F. delta-T setpoint. The highest observed reading was 44 degrees F. differential. Technical Specifications require the trip setpoint to be set at 14 degrees F. above the 100% operating room differential temperature to ensure that a steam leak in the Heat Exchanger Room would be detected, and automatic isolation of the RWCU system would occur.

The inlet side temperature element for TDS 2743F was recently relocated. Following this relocation, a new trip setpoint was not initially established which resulted in a RWCU PCIS isolation on September 10, 1990 as reported in Licensee Event Report 90-013. A Special Test was then performed to determine a new 100% operating room differential temperature which resulted in the switch trip setpoint being adjusted to 43 degrees F. delta-T.

On 12-4-90, outside air temperatures lowered, due to a cold front entering the area, causing Reactor Building ambient temperatures to decrease, thus lowering the inlet temperature to the RWCU Heat Exchanger Room. The Heat Exchanger room outlet air temperature does not change linearly with inlet temperature. This causes the room differential temperature to rise as inlet temperature lowers.

A Special Test to determine Heat Exchanger room differential temperatures during the winter months was scheduled, but had not been performed prior to this event as review of the monthly differential temperature readings indicated that existing differential temperatures were not changing significantly.

The root cause for this event has been determined to be conservatism inherent to the RWCU steam leak detection system design. This conservatism favors reliable steam leak detection as opposed to prevention of occasional unwarranted isolations which have no safety significance.

**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			
		90	-021	-00	3	OF	3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

**III. ANALYSIS OF EVENT**

This event had no effect on the safe operation of the facility.

The system actuated conservatively in response to a sensed high differential temperature. All automatic actions occurred properly. RWCU has no safety related functions other than isolation and does not prevent any ECCS system from providing adequate core cooling while isolated.

**IV. CORRECTIVE ACTIONS**

The RWCU Special Test was performed and a new isolation setpoint of 49 degrees F. delta-T was determined. The RWCU system was returned to service on December 6, 1990.

As members of the BWR Owners Group Leak Detection Improvement Committee, DAEC will continue to incorporate system improvements based on NRC approved committee recommendations. Currently, the BWROG committee is reviewing a proposed request to delete the delta-T isolation requirement from Technical Specifications.

Data will be collected and utilized in calculating differential temperature isolation setpoints for the RWCU Heat Exchanger room leak detection system which will continue to provide adequate leak detection capability while providing for an optimum of expected room inlet temperature variance without causing unnecessary isolations. Adequate data will be available and the calculation will be complete by 6-30-91.

**V. ADDITIONAL INFORMATION**

- A. No failed components were identified during this event.
- B. Previous Licensee Event Reports concerning high differential temperature RWCU isolations include LERs 86-04, 86-12, 87-01, 87-03, 87-24, 88-10, and 90-13.
- C. Reactor Water Cleanup (RWCU) - EIIS System Code CE;  
Primary Containment Isolation System (PCIS) - EIIS System Code JM;  
Steam Leak Detection System (SLD) - EIIS System Code IJ.