

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8705280092 DOC. DATE: 87/05/20 NOTARIZED: NO DOCKET #
 FACIL: 50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow. 05000331
 AUTH. NAME AUTHOR AFFILIATION
 THOMAS, B. N. Iowa Electric Light & Power Co.
 MINECK, D. L. Iowa Electric Light & Power Co.
 RECIP. NAME RECIPIENT AFFILIATION
 MINECK, D. L.

SUBJECT: LER 87-001-01: on 870114, reactor water cleanup sys isolated on signal from temp differential switch. Caused by steam leak from root isolation valve on regenerative HX. Root valve back seated & packing tightened. W/860520 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTR ENCL
	PD3-1 LA	1 1	PD3-1 PD	1 1
	CAPPUCCI, A	1 1		
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AFOD/DSP/ROAB	2 2
	AEOD/DSP/TPAB	1 1	DEURO	1 1
	NRR/DEST/ADE	1 0	NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1	NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1	NRR/DEST/MEB	1 1
	NRR/DEST/MTB	1 1	NRR/DEST/PSB	1 1
	NRR/DEST/RSB	1 1	NRR/DEST/SGB	1 1
	NRR/DLPQ/HFB	1 1	NRR/DLPQ/QAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/RAB	1 1
	NRR/DREP/RPB	2 2	NRR/PMAS/ILRB	1 1
	NRR/PMAS/PTSB	1 1	REG FILE 02	1 1
	RES DEPY GI	1 1	REG FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G	1 1

TOTAL NUMBER OF COPIES REQUIRED: LTR 42 ENCL 40

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2) 050003131	PAGE (3) 1 OF 3
---	---------------------------------------	---------------------------

TITLE (4)
Reactor Water Cleanup System Isolation Due to a Leaking Instrument Root Valve

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		
									None		
01	14	87	87	001	01	05	20	87	050003131		

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 084	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Bradford N. Thomas, Technical Support Engineer		AREA CODE 319	851-7309

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	CIE	IRITV	V1085	N						

SUPPLEMENTAL REPORT EXPECTED (14) <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
--	-------------------------------	-------	-----	------

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (18)

On January 14, 1987 at 2009 hours the Reactor Water Cleanup (RWCU) System isolated on a signal from the "F" temperature differential switch. This temperature differential switch receives inputs from temperature sensing elements which monitor temperatures in the RWCU heat exchanger room. The switch was found reading slightly below the isolation set point of 14 degrees fahrenheit. The system responded as designed with the closure of the RWCU outboard isolation valve, and closure of the RWCU feedwater return isolation valve. Operations personnel were dispatched to inspect the RWCU heat exchanger room. They reported a slight steam leak coming from the root isolation valve on the pressure indicator for the regenerative heat exchanger. At this time the inboard isolation valve was closed by operators from the control room. The root valve was back seated, and the packing was tightened. At 2328 hours the RWCU system was returned to service. This event is being reported in accordance with 10CFR50.73(a)(2)(iv) as "any event or condition that resulted in manual or automatic actuation of an Engineered Safety Feature."

On March 3, 1987 the RWCU system was removed for planned system maintenance. At this time the root isolation valve on the pressure indicator for the regenerative heat exchanger was repacked. After completion of unrelated RWCU maintenance, the system was returned to service on March 4, 1987.

IE 2/2
1/1

8705280092 870520
PDR ADOCK 05000331
S PDR

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2) 0 5 0 0 0 3 3 1	LER NUMBER (6)			PAGE (3)		
		YEAR 8 7	SEQUENTIAL NUMBER — 0 0 1	REVISION NUMBER — 0 1			

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

On January 14, 1987 at 2009 hours with the reactor operating at 84% of rated thermal power and in coastdown toward the Cycle 8/9 refuel outage the Reactor Water Cleanup (RWCU) system isolated on a signal from the "F" temperature differential switch (EIS Component Identifier CE-TDS-2743F). The system responded as designed with the closure of the RWCU outboard isolation valve (CE-MO-2701), and closure of the RWCU feedwater return isolation valve (CE-MO-2740). Another differential temperature switch monitoring temperatures in the same general area indicated there was indeed possible system leakage taking place. Operations personnel were dispatched to inspect the RWCU heat exchanger room. They reported a steam leak coming from the root valve (manufactured by the Velan Valve Corporation) on the pressure indicator (CE-PI-2714) for the regenerative heat exchanger (CE-HX-214A). The root valve packing was determined to be leaking. At this time operators closed the inboard RWCU isolation valve (CE-MO-2700). The root valve was then back seated, and the packing was tightened.

The RWCU steam leak detection logic consists of six temperature differential switches. These switches receive inputs from twelve temperature sensing elements which monitor temperatures in close proximity to inlet and outlet ventilation flow paths in the areas containing RWCU equipment. Any of these differential switches reaching their designed setpoint results in automatic isolation of the RWCU system from the reactor. In addition to the temperature differential switches, the RWCU leak detection system also uses area room high ambient air temperature sensing elements, and high differential flow indicators in the RWCU piping. Throughout this event the only instrumentation to reach its designed system isolation setpoint was CE-TDS-2743F. The RWCU system was returned to service at 2328 hours following successful root valve back seating and packing adjustment. The root cause of the packing leak is unknown.

On March 3, 1987 the RWCU system was removed from service for planned system maintenance. During this time the root isolation valve on the pressure indicator (CE-PI-2714) for the regenerative heat exchanger (CE-HX-214A) was repaired. Six new rings of packing were installed and one of two packing studs with damaged threads was replaced. The RWCU system was then pressurized with no leakage detected through this valve in its normal position. After completion of unrelated RWCU maintenance, the system was routinely returned to service at 2200 hours on March 4, 1987.

A review of past plant documentation reveals this particular root valve was discovered slightly leaking during routine plant walkdowns twice since 1985. In both instances the root valve was back seated, packing tightened, and during the next planned RWCU system shutdown the valve was repacked. In neither instance was the steam leak great enough to cause a RWCU isolation. A review of LERs (1984 to present) on RWCU isolations due to actual system leakage indicates one other similar occurrence. LER 86-004 (Reactor Water Cleanup System Isolation Due to Ventilation High Differential Temperature) reported a leaking drain valve from the RWCU system regenerative heat exchanger (CE-HX-214A) which raised the differential temperature across the room and caused a differential temperature switch system isolation setpoint to be reached. The drain valve was tightened and the system was returned to service.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2) 0 5 0 0 0 3 3 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 7	- 0 0 1	- 0 1	0 3	OF	0 3

TEXT (If more space is required, use additional NRC Form 388A's) (17)

Throughout this particular isolation all safety related equipment responded as designed. The RWCU system is used to reduce impurities from the reactor water, reduce secondary sources of beta and gamma radiation by the removal of corrosive impurities, and to drain excess reactor water during certain operational modes. The only safety related function associated with the RWCU system is the primary containment isolation function. The RWCU system is not needed to safely shut the plant down, nor is it needed do keep the plant safely shutdown. Therefore, this event had no effect on the safe operation of the plant. This event is being reported in accordance with 10 CFR 50.73(a)(2)(IV) as "any event or condition that resulted in manual or automatic actuation of any engineering safety feature (ESF)".

Iowa Electric Light and Power Company

May 20, 1987

DAEC-87-0547

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Subject: Duane Arnold Energy Center
Docket No. 50-331
Op. License DPR-49
Licensee Event Report No. 87-001, Rev 1

Gentlemen:

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

Very truly yours,



Daniel L. Mineck
Plant Superintendent - Nuclear

DLM/BNT/go

Attachment - LER 87-001, Rev 1

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

NRC Resident Inspector - DAEC

File A-118a

IE22
11