

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8708180355 DOC. DATE: 87/08/13 NOTARIZED: NO DOCKET #
 FACIL: 50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-023-00: on 870714, HPCI sys declared inoperable due to failure of quarterly operability test. Caused by breakdown in administrative procedures. Diaphragm recommended by svc info ltr obtained & installed. W/870813 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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	AEOD/DOA	1 1	AEOD/DSP/NAS	1 1
	AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
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	NRR/DREP/RAB	1 1	NRR/DREP/RPB	2 2
	NRR/PMAS/ILRB	1 1	<u>REG FILE</u> 02	1 1
	RES DEPY GI	1 1	RES TELFORD, J	1 1
	RES/DE/EIB	1 1	RGN3 FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Duane Arnold Energy Center (DAEC)	DOCKET NUMBER (2) 0 5 0 0 0 3 3 1	PAGE (3) 1 OF 0 4
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TITLE (4)
High Pressure Coolant Injection System Inoperable Due to a Failed Control Valve Diaphragm

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		
0 7	1 4	8 7		0 2 3	0 0	0 8	1 3	8 7			
									DOCKET NUMBER(S) 0 5 0 0 0 0		

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) 0 4 0	20.402(b)			20.405(c)			60.73(a)(2)(iv)			73.71(b)		
	20.405(a)(1)(i)			60.35(c)(1)			<input checked="" type="checkbox"/> 60.73(a)(2)(v)			73.71(c)		
	20.405(a)(1)(ii)			50.36(c)(2)			60.73(a)(2)(vii)			OTHER (Specify in Abstract below end in Text, NRC Form 366A)		
	20.405(a)(1)(iii)			50.73(a)(2)(i)			60.73(a)(2)(viii)(A)					
	20.405(a)(1)(iv)			60.73(a)(2)(ii)			60.73(a)(2)(viii)(B)					
	20.405(a)(1)(v)			50.73(a)(2)(iii)			60.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)						TELEPHONE NUMBER					
NAME Bradford N. Thomas, Technical Support Engineer						AREA CODE 3 1 9 8 5 1 - 7 3 0 9					

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		
E	BJ	IPC V R 2 9 0		YES							

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

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

On July 14, 1987 the High Pressure Coolant Injection (HPCI) system was declared inoperable when it failed its quarterly operability test. The HPCI turbine lube oil pressure control valve was discovered to have a defective diaphragm.

Maintenance personnel performing preventive maintenance on the turbine lube oil pressure control valve on July 10 discovered a brittle diaphragm. The diaphragm was replaced and the HPCI system was returned to service on July 11. It was this diaphragm that failed on July 14. It was later discovered that this failed diaphragm was purchased in 1983 without following the recommendations of a General Electric Service Information Letter (SIL).

The root cause of this event was a breakdown in administrative procedures. Inadequate controls are presently in place to assure Vendor Technical Manuals and other design documents are updated/revised following the review of Industry Operating Experience documents.

As immediate corrective action, a diaphragm recommended by the SIL was obtained and installed on July 16. After testing the HPCI system was returned to service.

As long term corrective actions, the material control procurement process is being evaluated to recommend controls which will improve the overall material procurement process. In addition, a new procurement engineering group has recently been formed. This group will be responsible for assuring controls are placed on material specification documentation. This event is being reported pursuant with 10CFR50.73(a)(2)(v).

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 2 3	- 0 0	0 2	OF	0 4

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

On July 14, 1987 with the plant operating at approximately 40% of rated thermal power, the High Pressure Coolant Injection (HPCI) System (EIIS System Code Identifier BJ) was declared inoperable at 1745 hours when it failed to meet the requirements of the HPCI system quarterly operability test. The HPCI turbine lube oil pressure control valve (BJ-CV2293) was discovered to be leaking oil due to a defective control valve diaphragm. Inoperability of the HPCI system is a seven day limiting condition for operation (LCO) contingent on the demonstration of operability of the Reactor Core Isolation Cooling (RCIC) system (EIIS System BN), Automatic Depressurization System (ADS, EIIS System SB), the Low Pressure Coolant Injection (LPCI, EIIS System BO) System, and the Core Spray System (CS, EIIS System BM). During this operability testing the 'A' train LPCI inject valve failed to fully close. At 2013 hours a 24 hour LCO was entered and a plant shutdown was initiated due to HPCI and LPCI being inoperable. The 24 hour LCO was exited at 0354 hours on July 15, 1987 when the LPCI inject valve was repaired and the remaining required systems were all demonstrated to be operable.

Maintenance personnel had noticed sluggish HPCI turbine lube oil pressure control valve (CV2293) operation during HPCI system operability tests performed during plant startup on June 29, 1987. The valve did perform its design function and system performance was not degraded. However, maintenance personnel contacted Terry Turbine for assistance in determining the cause for the sluggish valve operation. Terry Turbine personnel suggested the next time the HPCI system was removed from service for planned maintenance the valve be disassembled and the diaphragm be inspected for cracks or leaks. Because the plant was shutdown for unrelated maintenance work on July 5, 1987 it was decided to inspect the diaphragm on valve CV2293. On July 10, 1987 the diaphragm was inspected and found to be brittle but not leaking. At this time it was decided to replace the diaphragm. The diaphragm was replaced with a diaphragm from the warehouse stock. On July 11, 1987 post-maintenance testing was successfully completed and the HPCI system was returned to service. It was this replacement diaphragm which failed on July 14, 1987. Investigation has revealed that the diaphragm which was installed on July 10, 1987 was not the fabric-reinforced Buna-N diaphragm which is recommended by General Electric (see Service Information Letter (SIL) No. 358 dated June 1981). A review of warehouse purchase requisitions reveals a reinforced diaphragm was purchased in August 1982 in response to SIL No. 358. After this diaphragm was installed in May 1983 a new diaphragm was needed to replenish warehouse stock. During the subsequent purchasing, the recommendations of the SIL were not followed. The diaphragm was purchased directly from the valve manufacturer supplier where as the SIL recommends the diaphragm be ordered directly from Terry Turbine or through General Electric Company, to provide assurance that the correct diaphragm is obtained.

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 2 3	- 0 1 0	0 3	OF	0 4

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

The contributing causes leading up to and including this event are as follows:

1. The SIL's recommendations were not followed during purchasing of the diaphragm in 1983 as the individual purchasing the new diaphragm had no knowledge of the SIL.
2. The Material Management Information System (MMIS) which was used in the maintenance planning process had not been updated to reflect changes made to the diaphragm's specifications. At the time of the SIL review (1982) the MMIS was not in existence. However, the Vendor Technical Manual (which had been updated) was not consulted during the maintenance planning process.
3. Warehouse personnel did not conform to Iowa Electric Procedures as a quality level IV part (diaphragm) was used in quality level I equipment (CV2293) and issued without the proper signatures.

The root cause of this event is a breakdown in administrative procedures. Controls presently in place are inadequate to assure that recommendations made by Industry Operating Experience Documents get factored into material specifications and the material procurement process. We are addressing this deficiency along with other recommendations that are a result of our recent INPO plant evaluation.

As immediate corrective action, a fabric-reinforced Buna-N diaphragm was obtained and installed on July 16, 1987. Following testing, the HPCI system was declared operable at 1949 hours and the 7 day LCO was exited. In addition, all maintenance planners were reminded that the MMIS system has not yet been approved by Iowa Electric to be used as a controlled procurement tool and other design documents must be checked to assure the proper material specifications are met. Warehouse personnel were also reminded to check for proper signatures prior to issuing warehouse stock.

As long term corrective actions, the material control procurement process is currently being evaluated. This review will be completed by September 30, 1987. MMIS is to be approved as a controlled component procurement information system. This database would then be continually updated as recommended by reviews of the following documents:

- General Electric Service Information Letters
- General Electric Technical Information Letters
- NRC IE Information Notices
- INPO Significant Operating Experience Reports
- INPO Significant Event Reports
- INPO Operating & Maintenance Reminders
- Vendor Tech Manuals

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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 2 3	- 0 1 0	0 4	OF	0 4

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

In addition a new procurement engineering group has recently been formed. This group will be responsible for reviewing and approving the MMIS data base to assure the inclusion of up to date technical specification requirements.

Since the Technical Specification LCO surveillance requirements were met, this event did not affect the health and safety of the general public, or the safe operation of the plant. This event is being reported in accordance with 10 CFR 50.73 (a)(2)(v).

Iowa Electric Light and Power Company

August 13, 1987

DAEC-87- 0859

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. 87-023

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 for RLH
Rick L. Hannen
Plant Superintendent - Nuclear

RLH/BNT/go

Attachment - LER 87-023

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

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11