

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8706030417 DOC. DATE: 87/05/28 NOTARIZED: NO DOCKET #
 FACIL: 50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331
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 MINECK, D. L. Iowa Electric Light & Power Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-012-01: on 790917, river water supply pump 1P-117A
 declared inoperable due to failure of pump motor. Caused by
 Westinghouse design/fabrication defect & rough svc environ.
 Bronze impellers replaced. W/870528 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 3
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR 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	AEOD/DSP/ROAB	2 2
	AEOD/DSP/TPAB	1 1	DEORO	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/GAB	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	RGNS 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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TOTAL NUMBER OF COPIES REQUIRED: LTTR 42 ENCL 40

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 2
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TITLE (4)
River Water Supply Pump Motor Stator Weld Failure

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)													
									None			0 5 0 0 0													
0	9	1	7	7	9	8	7	-	0	1	2	-	0	1	0	5	2	8	8	7	0	5	0	0	0

OPERATING MOOE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											
POWER LEVEL (10) 01010	20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)		
	20.405(a)(1)(i)			50.38(e)(1)			50.73(a)(2)(v)			73.71(c)		
	20.405(a)(1)(ii)			50.38(e)(2)			50.73(a)(2)(vii)			<input checked="" type="checkbox"/> 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)(viii)(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)			10 CFR 21			

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

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
B	KII	MIO	W11210	NO						

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

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

In September of 1979, one of the four River Water Supply Pumps, 1P-117A, was declared inoperable due to failure of the pump motor. The welds that support the stator had failed. As a precaution, all of the River Water Supply Pump motor supports were modified.

There was no effect on the safe operation of the plant due to this single failure.

This report is being submitted for information in response to NRC concerns expressed during an April, 1987 inspection.

Following an engineering evaluation, this failure was determined to be a 10 CFR Part 21 manufacturing defect on the part of Westinghouse Electric Corporation. The root cause was found to be a design/fabrication defect in combination with a rough service environment.

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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 8 7	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 7	0 1 2	0 1	0 2	OF	0 2

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

In September of 1979, one of the four River Water Supply Pumps, 1P-117A, was declared inoperable due to failure of the pump motor. On September 17, 1979, inspection of the motor revealed the motor stator core had dropped from its frame and shorted to ground. The cause of the motor failure is believed to have been excessive vibration of the motor due to pump operation. The River Water Supply Pumps (EIIS System Code KI) have experienced numerous problems throughout the plant history, including high vibration. Impeller erosion by river water silt often results in pump imbalances, with a detrimental effect on the pump motor.

The motor for 1P-117A (KI-MO-117A-M) was identified as a Westinghouse 125 hp style 71C20297. The three other River Water Supply Pumps also used this style of motor. A Design Change Request was initiated in October 1979, to repair 1P-117A's motor and structurally enhance the stator to frame attachment to compensate for the high vibration problems. In addition, the other three River Water Supply Pumps were inspected, and each had its stator to frame attachment enhanced as well. The repair sequence was such that one pump was operable at all times for river water supply purposes.

The motor stator core was by original design supported on the frame by tack welds between the stator and frame. Inspection of these welds showed evidence of poor penetration into the frame. Following consultations with Westinghouse and with their approval, two core pins 180 degrees apart were inserted through the frame and 0.25 inches into the stator core as an additional support connection between the stator core and its frame. The work was done by a local authorized Westinghouse repair shop. This pinning was designed to provide additional support for the stator core if high vibration were to occur. These additional support pins were added to all four River Water Supply Pump motors in October 1979. Work on reducing pump vibration problems has included numerous impeller changeouts and other repairs. Replacement of the bronze impellers with cast carbon steel models to reduce erosion problems is slated to begin this summer.

There was no effect on the safe operation of the plant due to this single failure.

This report is being submitted for information in response to NRC concerns expressed during an April, 1987 inspection.

Following an engineering evaluation of this event, Iowa Electric determined on May 26, 1987 this failure is reportable as a manufacturing defect, pursuant to 10 CFR 21, on the part of Westinghouse Electric Corporation, 496 LaGuardia Place, Box 141, New York, New York, 10012. The root cause of the motor failure was found to be a design/fabrication defect which resulted in insufficient weld penetration, combined with the motor's application within a rough service environment. Inoperability of the River Water Supply system could present a substantial safety hazard due to loss of the plant's ultimate heat sink. Verbal notification to the Region III Administrator was made on May 26, 1987.

Iowa Electric Light and Power Company

May 28, 1987
DAEC-87- 0594


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. 87-012, Revision 1

Gentlemen:

In accordance with 10 CFR 50.73 and 10 CFR 21 please find attached a copy of the subject revised Licensee Event Report.

Very truly yours,


William C. Rothert
Manager, Nuclear Projects


Daniel L. Mineck
Plant Superintendent - Nuclear

DLM/JRP/go

Attachment - LER 87-012, 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