REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8706240123 DOC. DATE: 87/06/22 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.
HANNEN, R. L. Iowa Electric Light & Power Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-017-00: on 870522, emergency diesel generator (EDG) B & emergency svc water pump B autostarted during planned maint. Caused by personnel error due to improper tagout of EDG. Labels placed on dc control power. W/870622 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 LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES 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	DEDRO	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	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
	NSIC HARRIS, J	1	1	NSIC MAYS, G	1	1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 42 ENCL 40

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Duane Arnold Energy Center (DAEC)	0 5 0 0 0 3 3 1	1 OF 0 3

TITLE (4)
Engineered Safety Feature Actuations Due to Personnel Error

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 5	2 2	8 7	8 7	0 1 7	0 0	0 6	2 2	8 7		0 5 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 0 0	20.402(b)	20.405(c)	X	50.73(a)(2)(iv)		73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)		50.73(a)(2)(vii)		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)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Bradford N. Thomas, Technical Support Engineer	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	

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On May 22, 1987, with the plant in cold shutdown for the cycle 8/9 refuel outage, and all fuel loaded into the vessel, the 'B' Emergency Diesel Generator (EDG) and 'B' Emergency Service Water Pump auto-started when the DC control power to 4160 VAC breaker (1D2315) for the 1A4 Essential Bus was de-energized for pre-planned maintenance without proper tagout of the EDG. Control Room operators immediately identified the problem and instructed an operator in the essential switchgear room to re-close the breaker. The operator re-closed the breaker as instructed but instructions from the control room did not include steps from the equipment tagout form. This caused a loss of power to essential bus 1A4, and loss of 'B' RPS bus power and 'B' instrument AC. Groups II-V isolation signals were received, along with initiation signals for the Standby Gas Treatment (SBGT) system, and 'B' Standby Filter Unit (SFU).

The Diesel Generator was secured prior to loading, and power restored to 1A4. SBGT, and 'B' SFU were then secured and Group II-IV isolations were reset. Group V valves were tagged out at the time and did not respond to the isolation signal.

The root cause of the event was personnel error. Errors were made by Maintenance and Operations personnel. Maintenance and Operations personnel failed to recognize the consequences of de-energizing 1D2315, and operations personnel did not follow the tag out instructions during re-closing of the breaker.

As corrective actions, labels have been placed on the DC control power to 4160 VAC breakers for the essential buses to inform personnel to the proper breaker closing sequence, and operations and maintenance personnel will be required to read this LER.

This event is being reported as required by 10 CFR 50.73(a)(2)(iv).

IE22
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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Duane Arnold Energy Center (DAEC)	0 5 0 0 0 3 3 1	8 7	— 0 1 7	— 0 0	0 2 OF 0 3

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

On May 22, 1987 at 1000 hours with the plant shutdown for the cycle 8/9 refuel outage, all fuel loaded into the vessel, the 'B' Emergency Diesel Generator (EDG, EIIS System Code EK), and 'B' Emergency Service Water (ESW) Pump (BI-1P099B) auto-started when the DC control power to 4160 VAC breaker (EA-BKR-1D2315) for the 1A4 Essential Bus (EA-BU-1A004) was de-energized for pre-planned maintenance to change out the armature plate on 1A4s degraded voltage relay (EA-RK427-127X42) without proper tagout of the EDG. Control Room operators immediately identified the problem and instructed an operator in the essential switchgear room to re-close the breaker. The operator re-energized the breaker as instructed but instructions from the control room did not include explicit steps from the equipment tag out form. The degraded voltage relay (EA-RK427-127X42) must be held in the energized position while closing breaker 1D2315. Because this step was omitted, power was lost to essential bus 1A4 when 1D2315 was re-energized. This resulted in a loss of power to the 'B' Reactor Protection System (RPS, JC) bus, the 'B' instrument AC, and subsequent isolation signals for Groups II-V (JM) outboard (controlled by the 'B' RPS) containment isolation valves, initiation of the Standby Gas Treatment (SBGT, BH) system and 'B' Standby Filter Unit (SFU, VI). Groups II-IV outboard isolation valves isolated, while Group V valves were tagged out at the time.

The 'B' Diesel Generator was immediately secured. The degraded voltage relay was then reset, and power restored to 1A4. Power was then returned to the 'B' RPS at which time the SBGT system, and 'B' SFU were secured. All isolations were reset by 1030 hours.

The intermediate cause of the event was the degraded voltage signal being sensed by the 'B' Diesel Generator. The event was further complicated by not holding in the degraded voltage relay (127X42) prior to re-closing breaker 1D2315.

The root cause of the event was personnel error. Errors were made by Contractor Maintenance personnel and Utility Licensed Operations personnel. The Operations and Maintenance personnel failed to recognize what effect de-energizing 1D2315 would have on other plant equipment, and Operations personnel did not follow tagout instructions when re-energizing 1D2315.

As corrective actions, labels have been added to 1D2315 (1A4 degraded voltage detection circuit breaker) and 1D1315 (1A3 degraded voltage detection circuit breaker) to inform personnel that degraded voltage relays (127X-42 (1A4) and 127X-32 (1A3)) must be held in the energized position prior to closing the respective circuit breakers. In addition, operations and maintenance personnel will be required to review this LER to stress the importance of accurate pre-work review.

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

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

Essential bus 1A4 was also inadvertently de-energized in 1980 (LER 80-014) due to an electricians error while changing out a battery cell, in 1985 (LER 85-020) when a worker bumped the supply breaker to 1A4 when going to the aid of an injured co-worker, and in 1987 (LER 87-010) while removing a fuse for the essential bus degraded voltage detection circuit breaker maintenance without proper pre-maintenance system review. In each event the plant was in cold shutdown.

All systems responded as designed during the event thus assuring safe operation of the plant.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv).

Iowa Electric Light and Power Company
June 22, 1987
DAEC-87-0743

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. 87-017

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 6/18/87
Rick L. Hannen
Plant Superintendent - Nuclear

RLH/BNT/go

Attachment - LER 87-017

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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