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 FACIL:50-331 Duane Arnold Energy Center, Iowa Electric Light & Pow 05000331
 AUTH.NAME AUTHOR AFFILIATION
 AXLINE,J. Iowa Electric Light & Power Co.
 HANNEN,R.L. Iowa Electric Light & Power Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-007-00:on 900802,loss of essential offsite power due
 to personnel error during performance of switchyard BRT.

W/9 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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no-y

Iowa Electric Light and Power Company

August 2, 1990
DAEC-90-0571

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 #90-007

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 8-3-90

Rick L. Hannen
Plant Superintendent - Nuclear

RLH/JSA/ky

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

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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-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) 050003311

PAGE 11 OF 04

TITLE (4) Loss of Essential Offsite Power Due to Personnel Error During Performance of Switchyard Breaker Relay Testing.

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		
0	7	0	9	9	0	9	0	0	None		
0	7	0	9	9	0	9	0	0	050003311		

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																																	
N	<table border="1"><thead><tr><th>20.402(b)</th><th>20.405(c)</th><th>80.73(a)(2)(iv)</th><th>73.71(b)</th></tr></thead><tbody><tr><td>20.405(a)(1)(i)</td><td>80.38(c)(1)</td><td>80.73(a)(2)(v)</td><td>73.71(c)</td></tr><tr><td>20.405(a)(1)(ii)</td><td>80.38(c)(2)</td><td>80.73(a)(2)(vii)</td><td>OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td></tr><tr><td>20.405(a)(1)(iii)</td><td>80.73(a)(2)(i)</td><td>80.73(a)(2)(viii)(A)</td><td></td></tr><tr><td>20.405(a)(1)(iv)</td><td>80.73(a)(2)(ii)</td><td>80.73(a)(2)(viii)(B)</td><td></td></tr><tr><td>20.405(a)(1)(v)</td><td>80.73(a)(2)(iii)</td><td>80.73(a)(2)(ix)</td><td></td></tr></tbody></table>										20.402(b)	20.405(c)	80.73(a)(2)(iv)	73.71(b)	20.405(a)(1)(i)	80.38(c)(1)	80.73(a)(2)(v)	73.71(c)	20.405(a)(1)(ii)	80.38(c)(2)	80.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	20.405(a)(1)(iii)	80.73(a)(2)(i)	80.73(a)(2)(viii)(A)		20.405(a)(1)(iv)	80.73(a)(2)(ii)	80.73(a)(2)(viii)(B)		20.405(a)(1)(v)	80.73(a)(2)(iii)	80.73(a)(2)(ix)	
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20.405(a)(1)(v)	80.73(a)(2)(iii)	80.73(a)(2)(ix)																																

LICENSEE CONTACT FOR THIS LER (12)

NAME Jeff Axline, Technical Support Engineer

TELEPHONE NUMBER

AREA CODE

319851-7600

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD

SUPPLEMENTAL REPORT EXPECTED (14)

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

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

On 7/9/90, at approximately 1033 hours, a loss of offsite power to essential buses 1A3 and 1A4 occurred when the Standby Transformer was inadvertently de-energized. At the time of the event, the plant was in cold shutdown with the vessel completely defueled to the fuel pool and the reactor cavity flooded. Essential power was being supplied by the Standby Transformer due to the Startup Transformer being out of service for maintenance. Several 'A' side safety systems were out of service for maintenance, including the 'A' Standby diesel generator (bus 1A3). Upon loss of power, the 'B' Standby diesel generator started and picked up loads on essential bus 1A4.

The cause of this event was determined to be a personnel error by a non-nuclear utility system protection technician who failed to block trip signals during a breaker failure relay test. The task being performed was not covered by an approved procedure.

Corrective actions will be to proceduralize DAEC Switchyard tasks which have the potential to cause a loss of power or significant loss of load to the plant. In addition, a set of standard work practices for switchyard work has been developed to better control this work.

This event had no effect on the safe operation of the plant. The 'B' Standby diesel generator started immediately to power essential loads and offsite power was restored in 37 minutes.

**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) 0 5 0 0 0 3 3 1	LER NUMBER(6)			PAGE(3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

I. DESCRIPTION OF EVENT:

On 7/9/90, at approximately 1033 hours, a loss of offsite power to essential buses 1A3 and 1A4 (EIIS System Code EB) occurred when the Standby Transformer (EA-XFMR-1X003) was inadvertently de-energized. At the time of the event, the plant was in cold shutdown with the vessel completely defueled to the fuel pool and the reactor cavity flooded. The Startup Transformer and its feeder breaker were out of service for maintenance with the essential buses being powered by the Standby Transformer (EA-XFMR-1X004) and non-essential being backfed through the main transformer (EA-XFMR-1X001). The 'B' side Fuel Pool Cooling System (EIIS System Code DA) and Shutdown Cooling System (EIIS System Code BO) were in service and the 'B' Standby Gas Treatment System (EIIS System Code BH) was in service to ventilate the drywell. The 'A' trains of the following equipment/systems were out of service for maintenance, and not required to be operable: Standby Diesel Generator (SBDG), Residual Heat Removal (RHR), Emergency Service Water (ESW), Core Spray, and 125 VDC Batteries (Division I). In addition, the High Pressure Coolant Injection (HPCI), Reactor Core Isolation Cooling (RCIC), Condensate, Feedwater, and Reactor Water Cleanup (RWCU) systems were out of service for maintenance, and also not required to be operable.

The loss of essential power caused a full Reactor Protection System (RPS) (EIIS System Code JC) initiation, including Group I-V Primary Containment Isolation System (PCIS) (EIIS System Code JM) signals. No rods moved as all Hydraulic Control Units were tagged out. Various PCIS valves did not move as they were tagged out for maintenance (PCIS not required to be operable). In response to the loss of power, the 'B' SBDG started and energized its essential bus (1A4) as designed.

II. CAUSE OF EVENT

The intermediate cause for the loss of power to the Standby Transformer was tripping of the breaker which feeds it. The cause for the breaker trip was a personnel error by a non-nuclear utility system protection technician who failed to block trip signals during a breaker failure relay test. Although the technician understood the necessity of blocking the trip signals (he had done the first relay test successfully), a job specific procedure did not exist and therefore was not being followed to ensure that the steps were performed in the required order. This is considered to be a contributing factor to this event.

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FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER(6)

PAGE(3)

Duane Arnold Energy Center

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3 OF 4

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

III. ANALYSIS OF EVENT

This event had no effect on the safe operation of the plant. At the time essential offsite power was lost, the reactor was completely defueled to the fuel pool and the reactor cavity was flooded. In this condition, the main system required (for normal shutdown condition - not required by Technical Specifications) to be in service was fuel pool cooling. Although power was quickly restored to bus 1A4 by the 'B' SBDG, the associated fuel pool cooling train tripped, on the momentary loss of power, as designed. This train was returned to service within minutes of the trip to maintain adequate fuel pool cooling. The Standby Transformer and essential bus 1A3 were returned to service approximately 37 minutes after the event occurred. Loads were shifted from the 'B' SBDG to the Standby Transformer shortly thereafter. Although not required by Technical Specifications, it is standard DAEC policy to maintain at least one diesel operational with the vessel defueled.

If this event had occurred under different plant conditions, such as power operation, the Emergency Core Cooling System (ECCS) associated with essential bus 1A4 (being powered by the 'B' SBDG) would have provided adequate cooling to safely bring the plant to cold shutdown. (Note: work in the switchyard, such as the work being performed, would not normally be performed during plant conditions other than cold shutdown).

IV. CORRECTIVE ACTIONS

Several corrective actions, involving the control of work being performed in the DAEC switchyard, will be taken. A review of periodic maintenance/testing performed in the DAEC switchyard has been performed to determine which work has the potential to cause a loss of power or significant loss of load to the plant. Job specific work procedures will be drafted for this maintenance/testing by August 31. Until the applicable procedures are in place, DAEC switchyard maintenance/testing will be limited to essential functions and will be performed by two system protection technicians to provide a double check of the work. In addition to the above corrective actions, a set of standard work practices has been developed for work performed in the DAEC switchyard.

V. ADDITIONAL INFORMATION

A review of DAEC event history indicated that no similar events have occurred where switchyard testing caused a total loss of offsite essential power.

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FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER(6)

PAGE(3)

Duane Arnold Energy Center

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

EIIS System Codes for systems out of service at time of event:

	SYSTEM	CODE
1.	'A' SBDG	EK
2.	'A' RHR	BO
3.	'A' ESW	BI
4.	'A' Core Spray	BM
5.	125 VDC Batt. (Div. I)	EJ
6.	HPCI	BJ
7.	RCIC	BN
8.	Condensate	SD
9.	Feedwater	SJ
10.	RWCU	CE

This event is being reported pursuant to 10 CFR 50.73 (a)(2)(iv).